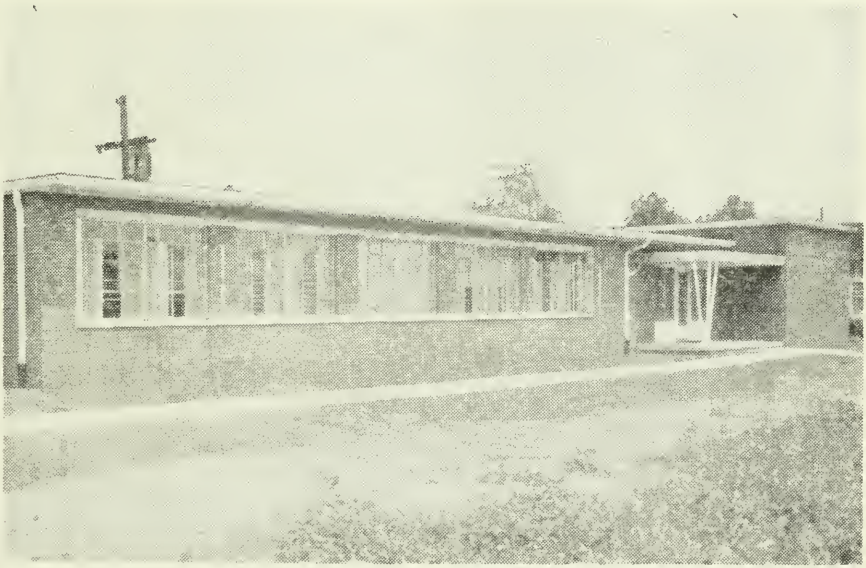
The Health Bulletin
Published by THE NORTH CAROLINA STATE BOARD OF HEALTH
This Bulletin will be sent free to any citizen of the State upon request

Published monthly at the office of the Secretary of the Board, Raleigh, N. C.
Entered as second-class matter at Postoffice at Raleigh, N. C. under Act of August 24, 1912

Vol. 71 JANUARY, 1956 No. 1



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CONTENTS

PUBLIC HEALTH AND THE DOCTOR IN CIVIL DEFENSE

By C. B. KENDALL, M.D.,
State Board of Health, Raleigh, N. C.

If we have not already done so, it is absolutely essential that we now accept the premise that civil defense—defense against chemical, bacteriological and radiological agents and the maintenance of a constant state of preparedness against such agents—is a way of life and a way of life that we must observe so long as there is necessity for any element of national defense. Our principal potential enemy has the knowhow and material for this type of warfare. He possesses a fleet of over 1,000 bombers capable of delivering CBR agents to any city in this country and returning to base, non-stop. His philosophy of offensive warfare is definitely based on the devastating sneak attack with thermonuclear weapons. He is capable of doing just that if and when the occasion demands and presents. His hand may be restrained by the knowledge that retaliation would be immediately forthcoming—but

he need not fear or prepare for such devastating damage as we must expect because of the wide and secret dispersal of his heavy industry and vital facilities. We hope that there is a tender heart behind recent pacific gestures. We have reason from past experience to believe otherwise. The old adage advises us to beware the Greek bearing gifts. On the day of Pearl Harbor there were in Washington two upper-crust Japanese diplomats bearing olive branches. The day before the Berlin blockade the city was visited by sweet-talking emissaries of the Soviet. Incidents of the dove of peace in one hand and the spike-studded mace in the other are evident from day to day. In 1931 Manuilsky of the Lenin School of Political Warfare explicitly announced the policy of subversive infiltration, lulling the bourgeois into a sense of security with concessions and peaceful gestures, and annihilating him when properly softened—this entire process requiring perhaps 20 to 30 years. There has been no indication of a change in over-all policy—and the time may be nearer than we think. Kaganovich has recently predicted worldwide victory for Communism in this century. The recent Geneva conference, of which we expected much, has, with great travail, spawned a dead herring.

No setup of civil defense can prevent the blow from falling. It can, however, definitely soften it and, if at all effective, prevent ultimate total paralysis or complete annihilation. **It can help the survivor to survive**—and that, in brief, is the function. To be able to do this requires planning, research, organization, training, the consecrated efforts of many and the genuine interest and cooperation of all. **This is everybody's business.** The task is tremendous—but it can be accomplished. The problems are knotty—but they can be solved. Preparation and prevention are expensive, and substantial support is required. When it is not forthcoming, bricks must be made without straw—and Mr. John Q. Public has frequently demonstrated that, with leadership and guidance, he can do just that.

It was my good fortune to be able to attend a two-day seminar put on in March by the U. S. Public Health Service on the functions of public health in civil defense. This was attended by J. M. Jarrett, our engineer, Dr. Ben Drake, Mrs. Kneedler, Steve Marsh and Dr. George Watson, of Durham. We came away with the feeling expressed by Mr. Jarrett that, while every detail had not been covered, we had received a bad scare, and he has done something about it in carrying the word to his sanitarians by means of his district conferences. We did not find the coverage in the program as bad as did a recent participant in a civil defense conference in South Carolina, who said at the halfway mark that the program was like a hoop skirt, covering everything but touching no important point.

To public health has been definitely delegated the maintenance of general and environmental sanitation and disease prevention and defense against CBR. The United States Public Health Service acts as over-all advisor and assistant in planning, research, training and detection and is prepared to give technical guidance in the preparation of shelters, protection of utilities and restoration of facilities. To the states is delegated the responsibility for actually setting up proper plans and organization and for carrying out training. They are advised and aided by the Regional set-up (for this Region, in Thomasville, Georgia). The lowest echelon is the local organization and this is of course the most important.

Since the development of the H-bomb and as a result of studies of its effects, attention has been sharply drawn to the necessity for planning for mass evacuation of whole communities. The radioactive fall-out from a modern thermonuclear device released in Washington can affect a downwind area 200 miles long and 40 miles wide. Unprotected survivors of the blast in Washington would be generally subjected to

a lethal dose of radioactive substance, which would be capable of causing the death of fifty per cent of the inhabitants of the Philadelphia-Trenton area if unprotected and ten per cent of those in New York City.

If warning is sufficient (and we hope for an hour) many inhabitants can be evacuated from a potential target area. Such evacuation becomes easier from an area in the path of fall-out, and, with proper information, there will be more time.

It requires little thought and imagination, however, to appreciate the stupendous problem presented by a rapid mass evacuation. To be prepared for such, it is absolutely essential that there be planning down to the last detail and organization by precinct, ward, street, block and family, with every individual instructed thoroughly in **what to do, where to go** and **to whom to look for orders.** Every family should have a least one thoroughly trained member—and a survival kit. In the exodus from the community minutely detailed organization of transportation and traffic is required. The proper routes must be selected for the many columns, and these must be finally chosen with a knowledge of the direction of winds and fall-out and of the width of the fall-out area. A temporary staging area would probably be necessary to evaluate all elements before the final receiving area could be selected. In such a movement public health and medical personnel would face all the problems of support in primitive conditions, and a knowledge of elementary and basic field sanitation and emergency sanitary equipment, as taught and used in the armed forces, would be of tremendous value.

Every area and community that can be possibly used for the reception and care of evacuees must be thoroughly studied for resources, those resources listed and arrangement made for improvised and emergency supplementation.

Exposure to radioactive material may produce a variety of reactions from mild tissue disturbance, through precancerous lesion, to tissue destruction and death. Susceptibility to infection is increased. Sublethal exposure of evacuees becomes a public health problem.

There are defensive measures of importance where a blast is delivered without warning. The survivors must dig in and seek cover from fall-out. Preparation for defensive measures consists of the spreading of information, recruitment of personnel and training. Training in first aid and in home nursing is important and must be stressed and carried on with vigor and wide coverage.

Teachers must be recruited from those with knowledge of medical emergencies and nursing. Instruction in aid for radiological casualties will be improved by the use of science teachers and handlers of radioisotopes. Wardens and sanitary personnel must become familiar with the use of the Geiger counter. A detection apparatus the size of a cigarette package is being worked out now with changes in the color of fluid in tubes the diagnostic element. We hope to have in the not too distant future a Geiger apparatus to be placed in the hands of district sanitarians for demonstration and instruction of sanitary personnel in the five districts. The efficacy of improvised shelters should be stressed and plans for them made available. The old vegetable or root cellar with a three foot roof of earth is a simple and effective protection.

Biological warfare can be effective against crops, domestic animals, humans and water and food facilities. It is an agent that could be particularly devastating against an uprooted and primitively existing population. An invader might choose to use it as being less destructive of facilities in an area that he plans to occupy. Surely some rather exotic agent would be used, one that is difficult of destruction, easily grown and distributed and capable of effect through various body systems. Anthrax has been suggested as meet-

ing most requirements, but such suggestion has not been impressive to us in this State who are aware of a surprisingly small outbreak of the disease among several hundred employees of a factory who worked for some time with material and in an atmosphere heavily laden with the organism.

The thought of such an agent in warfare is a peculiarly horrifying one. If you wish to appreciate what epidemic disease can do in a community ignorant of the cause, unprepared and thoroughly frightened and demoralized reread the description of bubonic plague in London appearing in the popular novel "Forever Amber".

Essential in defense are facilities for early recognition of the agent, early diagnosis of disease and early reporting. Research is being carried out on means for practically automatic detection of organisms. Local laboratories must keep abreast of all advances and there must be a network of sampling facilities. All must bear in mind that they can receive aid through State and Federal agencies in event of necessity. Plans must include arrangements for the protection of utilities and other facilities against overt or covert attack. Stockpiling of drugs is an element of all plans, and health departments must be prepared to carry out emergency sanitation measures.

Individuals may receive some protection from masks, clothing, shelters and evacuation. After an attack comes diagnosis of the agent, treatment of casualties, education of the people in the treatment and use of contaminated supplies, decontamination with heat, chemicals and soap and water and disposal of unsalvagable material. Vaccine prophylactics may be indicated, and the elaboration of polyvalent products is possible.

Most of us are somewhat familiar at least with the possibilities of chemical warfare and know that protection has been devised. Such warfare has been outlawed by civilization, but you must note that we have continued to support a chemical warfare component in the armed forces.

The U. S. Public Health Service has provided training facilities in the public health aspects of civil defense in the Advanced Civil Defense Center at Atlanta and the Sanitary Engineering Center in Cincinnati. Here courses of varying lengths are available as are extension courses, manuals and brochure material. They are well worth the consideration and patronage of all of us.

In many endeavors of this life and age it must be recognized that, if they are to be carried out enthusiastically and well, they will find some of their most enthusiastic sponsors in the women of the country. The American Nursing Association takes an active part in the councils of Federal Civil Defense, and the North Carolina Nurses' Association has an active civil defense group headed by Mrs. Mary Dunn of Watts Hospital. Plans exist for the utilization of nurse power through the **military, civil defense** and the **American Red Cross.** A good preparation for civil defense nursing function for those nurses who can qualify is a period of service in the armed forces.

"Nursing During Disaster" is a brochure that is available and instructive. The point may be made here that the term "disaster procedure" may be more palatable than "civil defense" and certainly its more general use may produce more general interest inasmuch as all the planning, organization and training advised and carried out by "civil defense" is intended also for very practical application in catastrophes that may be laid upon us other than by an enemy invader.

The American Hospital Association has a committee on mass casualty care. What local organization and planning has resulted, I do not know. It must depend upon the alertness and enthusiasm of the local hospital administrator and his staff and upon the vigor and foresightedness of the local director of civil defense. Those administra-

tors I have questioned have no definite plan.

Every hospital should have a written and detailed plan for the handling of mass casualties; for bed expansion; for full use of facilities, key personnel, volunteers. The plan should be adaptable, should show specific job assignments and should provide for relays of work shifts, procurement and storing of supplies, triage, (sorting) with admission and registration set up, and evacuation. A blood bank program should be prepared, and all personnel should be trained for smooth-running team work. Triage is extremely important and should be the function of the most experienced staff surgeon, who is prepared to set aside the case with over half his body burned, who will die anyway, and the patient with one-tenth of his body surface involved, who will get well anyway, and place for definitive treatment those between these extremes who can be saved by treatment.

Every hospital should "mother" an improvised emergency hospital set up, manned by **young people.** It is, perhaps, around the hospital with a detailed written plan kept up to date that organization of complete medical service for disaster with utilization of all professional disciplines may be best effected.

We must depend upon local health officers and their staffs to carry the torch in preparedness for CBR Defense. Such preparedness is essentially **preventive medicine.** All must discipline themselves to maintain an interest in preparedness for a situation that may never come about. Public health personnel are accustomed to such discipline.

THE PUBLIC HEALTH NURSE'S CONTRIBUTION TO THE MENTAL HEALTH OF A COMMUNITY

By RUTH A. GWYN,
Public Health Nurse, Forsyth County Health Dept.
Winston-Salem, N. C.

I would like to describe to you how a public health nurse in our department worked with a family which I shall call the Blake family. The six-year-old son, Jackie, was progressing very slowly in school, and it was decided that a psychological test should be done on him. The public health nurse was requested to obtain the medical and social history. The mother consented and was cooperative but couldn't come to the school for the conference. She requested that the nurse inform her of the results of this test, which revealed that Jackie's I.Q. was quite low and that he probably would reach the limit of his learning capacity around the 5th grade. The psychologist advised the nurse to work with the mother to help her understand and adjust to Jackie's limitations. Through repeated visits the nurse was able to guide her into giving him more understanding and into helping him more with home work and also counsel her to lessen her pressure on him. The school authorities later decided to retain Jackie in the first grade. This was extremely upsetting to him. The medical history had revealed that Jackie had occasional epileptic seizures. These became more frequent. The nurse advised Mrs. Blake to consult the child's physician and the school principal. The decision was then made to socially promote Jackie. His seizures immediately became less frequent, his crying spells ceased and his behavior became more normal. This mother's response to the nurse's guidance has become increasingly rewarding. The nurse's conferences with Jackie's teachers have help-

ed ease tension between the home and school. Mrs. Blake has a younger child who appears to be even more retarded mentally than Jackie. She has been able to accept this child more easily and with greater determination and faith in her ability to help him. Her keen interest in the nurse's visits, her pride in reporting signs of progress and her patience and faith have been most gratifying.

Mrs. Blake has demonstrated no attitude of rejection toward the nurse, as was the case at first toward Jackie's teacher. The nurse doubted that she would be justified in spending extra time and effort with this family, but this experience has convinced her that her time was—and still is—being well spent in a supportive role with the Blake family.

This example serves to show the kind of contribution the public health nurse with no specialized training may make to a family.

The supportive service of the public health nurse to the families of mentally ill patients, as well as to the patients, is obviously becoming more necessary. Increasing emphasis is being focused on this phase of work in the generalized program of public health nursing. We have been—and are—doing mental health nursing every day, but we probably have not recognized it as such.

Public health nurses have perhaps been reluctant to accept this role because of their feelings of inadequacy and lack of preparation in this area. This, nevertheless, should not block them in their efforts to see the patient's and his family's mental health needs and to broaden their services to include more mental health teaching. Because of her skill in human relations, her training and experience with other illnesses, it is logical to expect her to offer some help to families in which there is mental illness.

It is not expected of public health nurses that they give psychiatric therapy to the patient or the family, but there is some help which all nurses who work in a generalized program should be able to render. It is a recognized fact that a public health nurse who has had specialized training in mental health is qualified to give the greatest help, but one writer has expressed the feeling that the nurse without the formal training may very effectively relate herself to the patient and family in a less technical way, since she may, more or less, be considered a big sister to some families. Should she not trust her own information and impressions as she does in her other activities, such as helping a tuberculosis patient accept his diagnosis? Isn't she quick to sense a mother's rejection of her pregnancy? Does she not then try to direct her efforts to help her accept the role of motherhood—realizing the effect her attitude has on the expected baby and the whole family? The nurse recognizes the importance of the mother's mental health as well as the necessity for getting good physical care.

Probably one of the most important qualifications a nurse could have is her sincere interest in the promotion of good mental health and her desire to make her services more meaningful in this area. Her ability to be a sympathetic listener and inject her feelings of real warmth into a situation is of prime importance.

The nurse's own feelings may determine to a great degree the quality of help she is able to give mentally ill patients, as well as all other patients. She probably meets more negative attitudes regarding her help, but patience and understanding need to be employed. She must make her own decisions as to the techniques she will try in each individual setting. She usually can soon recognize the capacity and readiness of the family and patient to use her help. The nurse is accustomed to working with normal, reasonable people. She does not always get complete cooperation in making other types of visits. Several visits may be required in order to accomplish her purpose. Then, because of the very nature of

mental illness, should she be discouraged if she meets with even less or slower response from mental patients and their families?

More and more educational material is being made available to the nurse through nursing and medical journals to increase her interest and knowledge in this field. One can hardly pick up a magazine today which does not contain an article relating to mental health. More booklets are available in our health departments which offer help.

In our local department the in-service educational meetings, led by Dr. Roger Howell, of the University of North Carolina, and Miss Dorothy Boone, of the State Board of Health, have been most helpful. They have greatly stimulated our thinking and increased our understanding of mental and emotional problems.

Also, Dr. Lloyd Thompson and members of his staff at Graylyn Hospital have shared with us their knowledge and experience, which have been helpful.

These sources of help have served to guide us in seeing how we may become more aware of our need to recognize problems and to make better use of our resources to help meet the needs of our families.

Some of the resources which we have used and are currently using are: (1) the adult mental health clinics, (2) the child guidance clinic, (3) the special classes for exceptional children sponsored by the city and community school systems, and (4) the psychological teams from Graylyn Hospital, who work in our schools, as was illustrated in the Blake family situation.

The value of helping families and patients to seek spiritual guidance cannot be overlooked. Such help can be very meaningful to some people especially to elderly ones and to some who find experiences such as adjustment to the death of a loved one very difficult. The Department of Pastoral Care of a local hospital is a source of help in some cases. In others, the family minister or priest may give such service. The nurse may need only to guide the family in identifying such a need.

The nurse can help share the responsibility in the community for promoting a mental health education program by (1) helping minimize the stigma attached to mental illness, (2) helping people to recognize early symptoms of mental illness and the value of early diagnosis and treatment, (3) helping our communities to understand better how to accept the patient back into the community when hospital treatment has been used, (4) making available information regarding educational materials, such as suitable films and booklets and the media of radio and television, (5) making known community agencies which offer help and, (6) pointing out factors which contribute to poor mental health.

The factors involved in good physical health are known by a reasonably large number of people, but far fewer have a reasonable knowledge of good mental health.

The nurse may have the opportunity to suggest resource people in leading discussions in P. T. A. and civic group meetings.

Helping in the rehabilitation of the patient may again become the nurse's function. Finding diversions to boost the interest of the patient, such as games and crafts, is useful. Constant encouragement and reassurance of the patient and his family are needed to help him adjust to the family and community.

To me, the greatest challenge in public health nursing today is the integration of all phases of mental health in our everyday activities.

THE GREAT SEAL OF THE STATE OF NORTH CAROLINA 1585 QUAM VIDERI

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Vol. 71 FEBRUARY, 1956 No. 2

We must not in the Course of Publick Life expect *immediate* Approbation and *immediate* grateful Acknowledgment of our Services.—But let us persevere thro' Abuse and even Injury. The internal Satisfaction of a good Conscience is always present, and Time will do us Justice in the Minds of the People, even of those at present the most prejudic'd against us.

Benj.a Franklin 1772

CONTENTS

THE SECOND YEAR OF AMERICAN COLLEGE OF PREVENTIVE MEDICINE

By J. W. R. NORTON, M.D., M.P.H., F.A.C.P.M.*
State Health Officer, Raleigh, N. C.

George Dame, our first President, got our infant organization off to a running start with his unflagging energy and pioneering zeal. We shall always owe much to him for our propitious beginnings: for his calling the organization meeting in St. Petersburg and presiding also at the second meeting in Chapel Hill, leading in outlining our objectives and shaping the broad outlines of our constitution and by-laws. Except for basic principles as points of reference we should be a changing, moving, dynamic body. As we become older we must exert increasingly vigorous force against becoming a static or reactionary group.

We are deeply grateful to the American Medical Association and to the American Board of Preventive Medicine for making our existence possible. For their continuing helpful assistance and

*Presidential address before opening session of Third Annual Meeting, Kansas City, Missouri, November 16, 1955.

for that of the American Public Health Association, we shall ever be appreciative. We shall make fewer mistakes of omission and commission if we proceed "not in entire forgetfulness" of our humble beginnings and of those supporting our first awkward steps. We can and must earn the respect of the older specialist board groups. Those here tonight, and those who could not attend, have a strategic opportunity to shape and to steer our destiny now while we are young and more responsive to such individual efforts. We have the responsibility to see constructive guidance provided toward growth in strength and influence—"in wisdom, in stature and in favor." We can begin by simply promoting growth in numbers through encouraging qualified persons to take the Board examination, join our College and work with us in wielding increasingly constructive support for preventive medicine. The deadline for becoming charter members continues through the present calendar year.

We must grow in quality as well as size. Sound work deserves accurate and prompt recording and documentation. Reporting and discussion among our able group will identify, clarify and define our primary problems and opportunities. Stimulation toward logical next steps in careful evaluation and vigorous progress should follow. Our group is in a peculiarly good position to cut down on the lag between acquisition and the general utilization of preventive medicine information. Our personal as well as our professional conduct can build credit and good will. As collectively and individually we use our almost limitless opportunities for promotion of preventive medicine the initials of our College will become a trademark of prestige and respect. Let us not, however, become impatient for recognition nor weary in well-doing. Modesty, patience, dependability are becoming to any age and especially to youth. While recognizing that haste causes grave mistakes we must retain our enthusiasm to move forward.

Our purposes, ideals and services will grow. Think of the simple beginnings of any of our great and good organizations. In many respects their growth has been comparable to the lives of our most useful men and women. We should not demand nor even expect "the distant scene", but with each well-placed forward step the mists will clear and our horizons should enlarge.

Each of us has, or has had, the question: "With so many professional organizations already, is there need for the American College of Preventive Medicine?" Our answers will vary. What can this body accomplish that could not be as well, or better, done by one longer in operation? I shall mention a few and invite each of you to jot down and hand or mail to me your own thoughts, and I shall see that they are given consideration in planning for the future.

1. Neither preventive medicine nor our component parts—public health, aviation medicine and occupational medicine—has organized and concerted promotion and support. We have powerful (and sometimes misguided) efforts for categorical entities, such as poliomyelitis, cancer, tuberculosis or venereal disease. There is glamor and emotional appeal in these narrow fields—in treatment, in the tangible brick and mortar of buildings, in even partial salvage of those crippled by injury or disease and hence in need of definitive treatment or rehabilitation services. Our group should believe more strongly than any other in that ounce of prevention and its fundamental economy. Individually and collectively, we should have a convincing message.

2. There are increasing numbers of medical graduates in research, teaching, group practice and in civilian and armed forces government service. A few of these in their confusion and lack of appreciation of the best in our traditional concepts tend to infringe upon the field of private practice. The great majority of physicians are in individual fee-for-service practice, and a few of these are becoming increasingly fearful and impatient with one and all not in their particular category. Our na-

tional good fortune in health and medical care is not due entirely to any single group (as some claim) but to united health and medical efforts and our generally high living standard. If our new organization can work effectually toward preserving individual freedom and dignity by reorientation of these disrupting elements within the medical profession itself and thereby serve to unify and harmonize all medical forces against ill health with its physical and mental disablement and premature death, and not against each other, we shall have earned our keep.

3. The component groups of the College can serve as an aid and stimulus to each other as we work more closely. The story we shall hear tomorrow morning of the Cornell Automobile Crash Injury Study provides a clear example of constructive work started by aviation medicine and followed through by public health. Both of these groups have much to learn from occupational medicine. Our College brings the leading thinkers and workers of the three component groups together for catalytic action.

4. The most important single step in preventive medicine is the development and strengthening of local health departments to serve all our people—and I do not mean branches of the state health departments. We need more local autonomy and pride, with a desire to support, financially as well as otherwise, local preventive services. Small local health departments can be operated economically only on a generalized basis. Our categorical groups do not realize fully that their specialties can best be promoted through this locally supported generalized setup. We have no clear and influential voice in behalf of this generalized approach. Our College could have no more vital vision and goal than sound decentralized local health departments, employing generalized as well as specialized workers, providing an outlet for all categorical or specialized interests and serving the entire population. The continuing joint responsibility for our nation's health—local, state and federal—must be recognized, and the College should help in developing backing of our appropriating bodies so that neither of the three shall shirk its duty to the other two and to all our people.

5. Our College may well take a leading part in the orderly shift of emphasis from communicable diseases to degenerative diseases and special problems of the aging population, mental disorders, accidents (and we should have a more fitting name for this group), stream and air pollution, nutrition, rehabilitation of the handicapped, etc. We must keep firm control on the old while taking in hand the new. Our knowledge of viruses and mental disorders falls about where we stood in relation to bacteria a half century or more ago. Present and rapidly accumulating knowledge and experience make progress at a livelier pace possible, and the College can assure its continuing realization.

The College of Preventive Medicine is made up of the group best fitted to point the way and clear the path in the five areas to which I have so briefly referred. You will each think of others (and so have I, but I picked just these to mention). Anyway, we have plenty to challenge our swaddling infant, and after we learn to crawl and walk we can move on to run and jump—and then to really serious and mature thinking and work.

Finally, a word on our immediate problems. Our business sessions tonight and tomorrow enable us to develop our organizational pattern still further and better through improvements in our Constitution and By-Laws. I recommend official incorporation and the combining of the offices of Secretary and Treasurer, and we should allocate a reasonable fund for office expenses. We should decentralize as much as possible to place the main responsibility with the State Academies—and in some states possibly still further to local units. Our officers should always be active exponents and supporters of preventive medicine and not just figureheads. Even tho now we see thru the veil darkly our pioneering spirits respond eagerly as the horizon beckons.

NOTES AND COMMENT

By THE EDITOR

NORTH CAROLINA HOSPITAL FOOD SERVICE INSTITUTE

The fourth annual Hospital Food Service Institute will be held at North Carolina State College, Raleigh, June 13, 14, 15, 1956. This Institute, which is sponsored by the North Carolina Hospital Association, Dietetic Association and State Board of Health, is planned for food service managers in small hospitals having 20 to 100 beds. Hospital administrators are also invited to attend.

Announcements will be sent to hospitals in the above category in the near future. Each hospital is urged to send representatives to the Institute. Registration will be limited to 55, so anyone wishing to attend should send in the pre-registration blanks immediately upon recipts.

Further information can be secured from the Nutrition Section, State Board of Health.

ACCENT ON HEALTH

(Municipal Reference Library NOTES, Vol. XXXIII, November, 1955, No. 9)

"Public health has to do with persons of every rank, of both sexes, of every age. It takes cognizance of the places and houses in which they live; it follows the child to school, the laborer and artisan into the field, the mine, the factory, the workshop; the sick man into the hospital; the pauper into the work house; the lunatic to the asylum; the thief to the prison. It is with the sailor in his ship, the soldier in his barrack; and it accompanies the emigrant to his new home beyond the seas. To all of these it makes application of a knowledge remarkable for its amount, and the great variety of sources whence it is derived. To physiology and medicine it is indebted for what it knows of health and disease; it levies large contributions on chemistry, geology, and meteorology; it cooperates with the architect and engineer; its work commends itself to the moralist and divine."

—From Public Health, a series of lectures by Dr. William A. Guy, London, 1874.

The above quotation was called to our attention by one of the good doctors in the Department of Health with the additional information that Dr. Guy, who was practising in England a century ago, also found time to lecture and write in the fields of physiology, legal medicine, hygiene, social science, medical statistics, chemistry, and microscopy. It's a very large claim he has staked out for public health, but he must have had some foreknowledge that it would be thoroughly worked. A pity he couldn't have lived on into this century!

DOCTOR PREFERS STEAM KETTLE TO NEWER HUMIDIFIER

The good old steam kettle works better than a mechanical humidifier for treating a childhood respiratory disorder, a Haifa, Israel, physician said recently.

Dr. Abraham Friedman said that the steam kettle is better because it can produce more moisture than a cold-air mechanical humidifier, the now generally accepted apparatus. Moist air helps prevent the blocking of breathing passages which may occur in an acute inflammatory disease of the larynx, trachea, and bronchi.

He explained that in breathing, the air enters the respiratory tract at room temperature and humidity. On its way down the air absorbs moisture from the membrane lining the passages. It finally is exhaled at body temperature and saturated with water. The difference in temperatures and humidities between the air inhaled and exhaled results in a continuous loss of water from the respiratory tract.

In acute respiratory disease, the loss is speeded up and the breathing passages eventually may be blocked by the formation of a dry crust on the mem-

branes. The drier the inhaled air, the more water it absorbs from the membranes, thus increasing their "drying out."

To prevent obstruction, the air breathed in must be as moist as the air breathed out. This means that the temperature and humidity of the air inhaled should be approximately equal to the temperature and humidity of the air exhaled.

Since there is a ceiling on the amount of water air will hold at a specific temperature, the air temperature must be raised to increase water content. The mechanical humidifier may raise water content, but the low-temperature air cannot hold as much water as high temperature air would, he said, adding that a steam kettle accomplishes both things.

While recommending the steam kettle method, Dr. Friedman warned that necessary precautions must be taken against the hazards of a burn and the develoment of a high fever in the child.

Dr. Friedman, of the department of pediatrics of Ramham Government Hospital, made his report in the Archives of Otolaryngology, published by the American Medical Association.

COMMITTEE OUTLINES PROGRAM FOR POISON CONTROL

The American Medical Association's Committee on Toxicology outlined four methods for combating the perennial problem of accidental childhood poisonings.

The methods include education, more stringent laws, establishment of poison centers, and greater efforts by local physicians. They were discussed in a report prepared for the committee by Dr. Jay M. Arena, Durham, N. C., and published in the Journal of the American Medical Association.

Bernard E. Conley, secretary of the committee, said ". . . the curiosity of children coupled with the casualness with which many parents handle and store drugs and chemicals are predisposing factors to most unintentional poisonings."

The "alarming feature" of the problem is the regularity with which various household agents and drugs are swallowed by children, the report said. Leading causes are drugs, especially aspirin and barbiturates, petroleum products, lead, corrosive agents such as lye, and arsenic.

Of approximately 14,000 accidental deaths that occur each year among children from 1 to 14 years, almost 1,500 are reported as being caused by accidental poisoning, but this figure is "far from correct" for many cases are never recorded, the report said.

Cnildhood deaths from poisoning occur disproportionately often in 12 southern states—Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North and South Carolina, Oklahoma, Tennessee, Texas, and Virginia, the report said.

For the barbiturates and aspirin there is little regional difference, but for corrosives and arsenic the rate in these southern states is six times that for the rest of the country. The rate for petroleum products, principally kerosene, is four times as high.

"Quite apparent to everyone" is the need for educating laymen and parents to the dangers of household agents, but many physicians also are unaware and must be educated, the report said. Manufacturers must be made aware of the seriousness of the problem and of their responsibilities. They should consider the use of distinctive safety containers and better labeling with warning statements and when necessary uniformly standarized doses for drugs.

While the present federal laws are useful as far as they go, they are far from adequate, the report said. Laws regulating the sale of household articles not covered by existing laws must be considered. Physicians and lay groups should work for state laws to strengthen federal ones and to bring about correction of their special state problems.

The report suggested that the sale of kerosene be restricted except in a special type of container, which would also carry a label warning of its poisonousness and inflammability.

Poison centers should be set up to collect and distribute information on

the type, frequency, treatment, and preventive measures for poisonings.

Another step forward would be a concentrated effort by every physician to educate parents to the hazards of household agents. This could be done by pointing out corrective measures while making house calls, distributing safety literature to mothers, using bulletin board displays in the office, encouraging community programs to study the problem, and giving information to radio stations, newspapers, and magazines.

Much can be accomplished by asking pharmacists to put labels such as "Keep out of the hands of children" on all dangerous drugs and agents, the report said.

Dr. Arena is associate professor of pediatrics at Duke University and director of the Poison Control Center of Durham.

"HEAD INJURY EPIDEMIC" COULD BE PREVENTED

The only cure for the "head injury epidemic" now sweeping the country is prevention through safer automobile construction, a California neurosurgeon has said.

Head and neck injuries account for nearly 70 per cent of all auto crash deaths, Dr. C. Hunter Shelden, Pasadena, said in the Journal of the American Medical Association. In spite of the "most concerted efforts" of neurosurgeons, the severe head injury is fatal, for once the brain is injured beyond a certain degree, there can be no recovery, he said.

Last year there were 5,200,000 reported auto accidents, 1,500,000 resultant injuries, 100,000 persons totally disabled, and 38,000 deaths—"rather lethal statistics to refer to a so-called pleasure car," Dr. Shelden said.

Pressure is developing that will bring about safety improvements, but so far there has been "much smoke but no fire," he said. Changes must be made at once and not in a piecemeal manner. "Such a delaying action may be a satisfactory policy in business, but not in a matter of health and public safety. Translated into medicine, it would be comparable to witholding known methods of lifesaving value," he said.

Engineers have supplied valuable safety ideas, but they have had only limited use, because the automobile industry "apparently is governed entirely by the cost accounting division," he said. No new idea can be adopted unless it reduces present costs or promises better sales.

However, safety is the one feature that the public will accept if given the opportunity, without the need of propaganda and expensive advertising, he said.

Because no company can afford to undertake an immediate and complete safety program, Dr. Selden suggested that a national group be set up to regulate and approve automobile safety, allowing industry to pool safety ideas, standardize construction methods, and avoid competition.

Dr. Shelden outlined some suggestions for improved auto safety, pointing out that if a medical research group can devise safer construction methods engineers could come up with even better ones.

Of particular concern in preventing head and neck injuries is seat construction, which Dr. Shelden called "a disgrace to the combined engineering staffs of the automobile industry." Seats are designed for comfort and not for safety. The fixed portion of the seat is fastened to the frame only by four small bolts, which allow frequent seat failures. Seat cushions are not securely fastened, are easily torn loose and tossed about in a crash, and can cause fatal injuries.

Poor seat design accounts for thousands of "whiplash injuries," which occur when the car is struck from the rear. With the impact, the head is thrown backwards. Since the seat back is low, the top of the seat serves as a fulcrum over which the neck is snapped. Whiplash injuries are the most disabling of all nonfatal auto injuries, he said.

Dr. Selden suggested that a small elevated portion of the seat be placed

directly behind the head—not high enough to support the head while driving but high enough to give the head support if the neck is suddenly extended.

He also said a method that would rigidly attach both doors to the outside edges of the front seat backs is needed. This would hold the doors tightly shut and prevent the front seat backs from flying forward. A better locking method is necessary to keep passengers from being thrown from the car. Between 25 and 35 per cent of all deaths occur in this manner.

There has been some improvement in interior projections, but dashboards still have dangerous knobs and buttons that can "easily produce" serious depressed skull fractures in a crash, he said. He also suggested the addition of a roll bar to prevent the crushing of the passenger compartment if the car rolls over.

He said current safety belts with two straps are inconvenient, because the free ends when not in use lie across the seat, fall out the door or on the floor.

In order to fasten the belt, both hands must be taken from the wheel and attention turned from the road. A belt that rolls up when not in use and can be fastened with one hand would improve the situation. Until improved designs are available, the public is not going to take full advantage of safety belts, he said.

"Eventually a method must be developed whereby the passenger is automatically and instantaneously restrained during a crash," he said.

COMMITTEE TELLS DANGERS OF INSECTICIDE

The Committee on Pesticides of the American Medical Association has warned of the danger of poisoning by chlordane, an agricultural and household insecticide.

Deaths following chlordane poisoning were reported in the Journal of the A.M.A. as part of a discussion of the possible hazards of using the insecticide.

Poisoning may be caused by repeated skin contact, breathing of the fumes or accidentally swallowing the chemical. Chlordane appears to be absorbed more rapidly than similar insecticides, the report said.

Chlordane is effective in controlling such pests as grasshoppers, ants, flies, mosquitoes, and roaches. It is available in oil solutions, emulsion concentrates, dusts, paints, and waxes.

The insecticide should not be used on food crops with exposed edible parts or on crops fed to animals, because the chemical can be retained in the food and in milk, eggs, and meat, the committee said.

Its use in the home should be limited to spot treatment around kitchen baseboards, doors, and windows. Care should be taken to avoid areas frequently contacted by children. It is not approved for over-all interior use, because slow liberation of fumes, especially in closed heated rooms, is dangerous.

Because chlordane is readily absorbed through the skin, the committee cautioned against its use in insecticidal waxes and polishes which touch the skin.

Symptoms of chlordane poisoning include irritability, labored breathing, muscle tremors, convulsions, and deep depression. Others are nausea, vomiting, diarrhea, abdominal pain, blurred vision, cough, confusion, and delirium.

The onset of symptoms is influenced by the means of absorption. Acute signs usually appear within 45 minutes after swallowing the poison. Death may occur within 24 hours and is frequent between the 48th and 96th hour, the report said.

The treatment consists of removal of the poison from the skin or stomach, followed by a salty purge and administration of sedatives. In case of skin contact, the contaminated area should be washed immediately with soap and water. If chlordane is swallowed, washing of the stomach, followed by administration of epsom salts or other salty cathartics is recommended. Since milk, oil purgatives, and other fatty or oily substances speed absorption of the poison, they should be avoided.

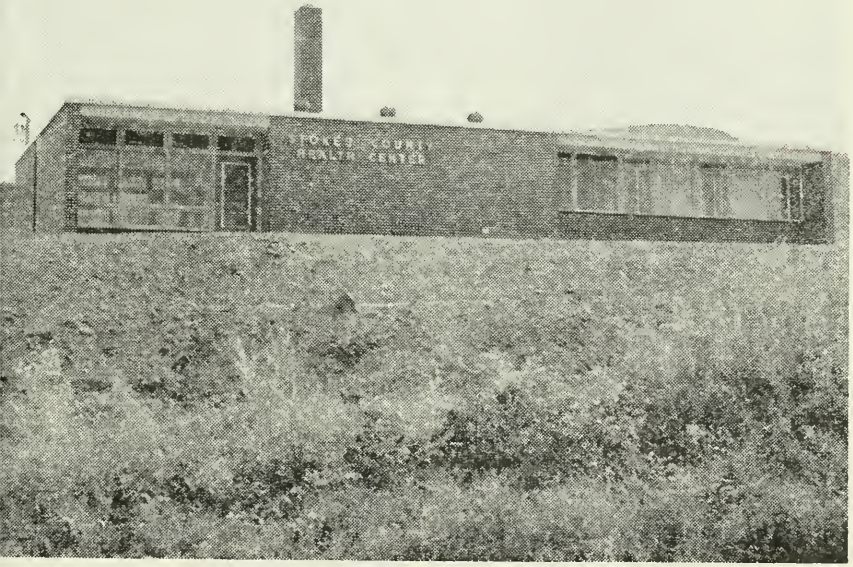
The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

This Bulletin will be sent free to any citizen of the State upon request

Published monthly at the office of the Secretary of the Board, Raleigh, N. C.
Entered as second-class matter at Postoffice at Raleigh, N. C. under Act of August 24, 1912

Vol. 71 MARCH, 1956 No. 3



STOKES COUNTY HEALTH CENTER
Danbury, North Carolina

CONTENTS

LIFE AND DEATH IN 1955

BY WILLIAM H. RICHARDSON
State Board of Health
Raleigh, North Carolina

For many years now, the State Board of Health has maintained an increasingly accurate record of births and deaths in North Carolina. All births are reportable, as well as all deaths. Therefore, under the present system, the State Board of Health is able to collect and to give out information as to the cause of each death reported. Such records as those just referred to are known as vital statistics—the "bookkeeping of life and death."

Statistics, as such, mean very little to the average person, but, when properly interpreted, they can furnish a world of interesting and helpful information. The mere fact that a given number of people came into being during a certain year, or that a certain number died, means very little. There is more human interest attached to deaths from various causes than to births. The method by which people are born into the world has never changed,

so far as we know, but the causes of death have varied through the years. Some diseases which formerly took a heavy toll of life each year now are practically extinct. We shall get to that later.

The State Board of Health issues a month-by-month report of births, total deaths and deaths from selected causes. Each of these reports is cumulative. The most interesting, however, is that which appears when all preliminary figures for December have been received. This report, which is issued during the first part of each year for the previous year, is provisional and is subject to changes until all reports have been received, compiled, and verified. Some time ago the Public Health Statistics Section of the State Health Department issued its provisional figures for 1955, showing the results of the "bookkeeping of life and death" in this State during the past calendar year. At first glance, this report is just so many figures. Analyzed, however, it shows a progressive picture of the health of our people over a period of years. Published reports carry a summary of all births, including and since 1914, and of deaths from selected causes including and since 1916.

New High Birth Total

Let us now pinpoint the provisional figures for 1955 and make some interesting comparisons, as we proceed. Last year North Carolina's total number of live births reached an all-time high, with 116,206 reported up to the time the provisional figures were compiled. During the previous year, that is 1954, the total was 115,889. We now have a population of more than four and a quarter million people.

In 1914, when our population was estimated to be 2,421,191, the number of live births reported to the State Board of Health was 71,931. Just what the **actual** total was we will, perhaps, never know. That was the first year for which figures were published, and the reporting system was very inadequate, as compared to the present time.

As previously stated, we all enter this world through one door, namely natural birth; but, although the wall of partition between this life and the next is death, there are many doors through which people pass into the Great Beyond. Through the miracles of medical science, many of these doors which formerly beckoned thousands to pass through their portals have been all but closed, certainly in the United States. We might take typhoid fever as one example of this. The 1955 provisional report does not even mention typhoid fever, because there was **only one death** from that cause in 1955, while in 1916, 702 typhoid and paratyphoid deaths were reported to the North Carolina State Board of Health. During that same year, malaria deaths reported totaled 337, while none occured in our State last year. Both typhoid and malaria have been practically eliminated through immunization, sanitation and drainage; but, if we should lower our guard, these killers would seize the opportunity to strike again.

Before taking up the subject of other deaths from selected causes, let us pause for a moment and consider two comparative totals. In 1914, when our population was less than two and one half million, 29,044 deaths from all causes, were reported to the State Board of Health. Last year, with a population of more than four and a quarter million, only 32,469 deaths from all causes, were reported. To tell the whole story would require much more time and space than are available.

Certain Notable Declines

Before pointing up this discussion with some extremely significant facts, suppose we review, briefly, the decline in deaths from certain diseases which have been b r o u g h t under control through the application of the principles of preventive medicine.

We shall begin with the cradle and tell what it furnished the grave. In 1914, when there were only 71,931 live births reported in North Carolina, there were 6,497 deaths reported among infants under a year old. Compared with that, there were only 3,577 such deaths

reported last year, when the total number of live births was 116,206.

Before leaving this field, let us note one other extremely interesting comparison. In 1914, with the number of live births previously referred to, maternal deaths numbered 524, that is, there were that many deaths resulting from pregnancy and childbirth. Last year, when there were more than 116,000 live births reported in North Carolina, only 100 mothers laid down their lives. We shall not go into the causes for this phenomenal decline, the broad reason for which has been the more affective application of the principles of preventive medicine.

Compulsory Immunization

Nearly two decades ago the legislature of North Carolina passed a law requiring the immunization of children against diphtheria during the first year of life. How has this worked? We still are thinking in terms of preventive medicine. In 1916, when our babies and small children were wide open to attack by this disease, 410 died. In comparison with this, there were only four diphtheria deaths reported in North Carolina in 1955. During 1939, when the immunization law was passed, there were 164 deaths among our children, resulting from diphtheria. The decline since that date has been steady, with only one flare-up. That was in 1945. Despite the fact that this law may not have been enforced as it should have, we have seen the results previously referred to. It would seem therefore, that enforcement is becoming more universal.

Whooping cough is another childhood disease which is being brought under control by preventive medicine. Compulsory immunization against this disease is required by a law passed in 1945. During that year, there were 97 whooping cough deaths reported in North Carolina. By 1953 the total had been reduced to seven, while only ten whooping cough deaths were reported in 1954; but, in 1955, for some reason, there were 32. Whooping cough, as all of us know, occurs in cycles. Even before the immunization law was passed, it had become preventable, and many parents were resorting to immunization as a means of protecting their children.

It might be well to state, in this connection, that if whooping cough had not been known to be preventable, the State Board of Health would never have sponsored a law requiring immunization. Public health never considers an experiment. Any preventive agent must have proved itself before it is either adopted or advocated by those who are charged with the mass protection of our people.

Another disease that has been successfully attacked through the use of new drugs in pneumonia. There was a time when all a patient and his attending physician could do was to await "the crisis" and, when that was successfully passed, to administer, perhaps, some stimulant and pray that the patient was on the road to recovery.

It is not customary to mention "remedies" in a discussion of this nature, but we do know that, through the use of certain drugs which can be prescribed only by physicians, pneumonia infection often can be cleared up within a comparatively short time. During 1955 influenza and the various types of pneumonia resulted in 1,203 deaths in North Carolina. That was a large number, to be sure. But what about what many call "the good old days?" In 1916 there were 2,517 pneumonia deaths reported to the North Carolina State Board of Health. In 1918, the year of our biggest flu epidemic, there were 4,210. As late as 1934 pneumonia deaths totaled 3,173. Since the discovery of certain antibiotics, deaths have been on the decline during most years. However, statistics show that this disease is not entirely whipped, by a long way.

In 1955 there were only 11 polio deaths reported in North Carolina, compared with 23 the previous year. The largest number ever reported was 143 in 1948, when we had our biggest epidemic. While polio is a dreadful disease and its crippling effects are very distressing, in many instances, it is a small killer compared with accidents

and some of the others that can be prevented.

Some Significant Facts

Let us now bring this discussion to a climax with some statistics that are more than just so many figures. More people today are living to a "ripe old age" than ever before in our history. A hundred years ago the average span of life was around 40 years. Today it has about reached the Biblical standard of "three score years and ten." There are more old people among us today than ever before and more who have passed the dangers of infancy, childhood and middle life. These people are subject to causes of death which are not so common among young people. These are commonly called the degenerative diseases. Without undertaking to explain what is meant by that term, let us consider a few startling figures.

Early in this discussion it was pointed out that the total number of deaths occurring in North Carolina last year, from all causes, was 32,469. Of this number, 11,245 died as the direct result of heart disease; 4,440 were victims of apoplexy, and 3,939 died of cancer. Deaths from each of these diseases continue to climb with the passing years and with the increasingly large number of people who live to reach old age. These three causes last year accounted for 19,624 deaths, out of a total of 32,469. None of the three has yet been classified as preventable. On the other hand, they present a gigantic challenge to practitioners of the medical profession, both curative and preventive. That is why public health considers the degenerative disease in the category of those human ailments which must be studied with a view to bringing them within the range of prevention.

Physicians have found that persons suffering from any of these diseases need not consider themselves in a hopeless plight. Those with diseases of the heart and circulatory system can be taught ways and means of living with the conditions under which they suffer, if they will consult their family physicians while there is yet time. Some cases of cancer can also be cured, if discovered in time for proper treatment.

And so we bring to a close a discussion of life and death in North Carolina for 1955.

NOTES AND COMMENT

BY THE EDITOR

PARENT-CHILD CONFLICTS CAUSE BREATH-HOLDING

Frequent severe spells of breath-holding by a small child are a sign of "profound insecurity" often resulting from conflict with his parents, two pediatricians said recently.

Drs. Alanson Hinman, Winston-Salem, N. C., and Lloyd B. Dickey, San Francisco, said in the American Journal of Diseases of Children, published by the American Medical Association, that breath-holding is an early form of temper tantrum—a primitive expression of anger or frustration.

A child may become frustrated because he is unable to cope with the world or because he feels insecure with his parents. In his helplessness, having no means of adequate expression, he reacts with rage "so overwhelming" that he loses control over himself and goes into a spell, they said.

Treatment must be directed toward a solution of the family conflict and helping the parents understand the emotional basis of the spells, the physicians said. The older methods—plunging the child into cold water or ignoring him during a spell or pointing out to him that similar behavior will be met with "harsh, if not painful, measures"—certainly should be avoided, they said.

The little child's only way of protesting against a frustrating world is by crying and throwing himself around. Anything approaching the same kind of behavior on the part of adults will aggravate the situation, they said.

"Every effort should be directed toward removing the sources of conflict, such as coercion in eating, overly strict or too early bowel and bladder training, pressure in the matter of naps and bedtime, and other premature and excessive demands on the child," they said.

The parent should be reassured that the child can receive no physical or mental damage from the spells themselves. They should be helped to understand the difference between discipline and punishment and to establish a "tolerant and consistent disciplinary regime," the authors said. In some cases the parents may need help in adjusting their own emotional problems.

Spells occur most frequently in the last half of the first year and during the second year of life. They usually are precipitated by injury or frustration and the resulting anger, the physicians said.

The sequence of events in a spell is: crying, a long-sustained expiratory "cry" without succeeding inhalation of air, a slight blueness or paleness after the previous flushing of the face, stiffening of the limbs, loss of consciousness, relaxation, inhalation, and recovery. Some children are weak or exhausted after a spell, but most seem entirely normal after breathing is reestablished, they said.

Breath-holding spells are sometimes confused with epileptic seizures and other lesser-known disorders. Epileptic attacks and breath-holding spells can be distinguished because of the difference in "crys." Convulsions in breath-holding, "which are rare anyway," are mild compared to the "dramatic" ones of epilepsy, and the epileptic seizures usually do not follow some specific event such as a fall or frustration. They said that if any "real doubt" exists, a thorough medical study should be undertaken.

The physicians outlined 11 cases among children ranging in age from one year to five years, seven months. There was only one over two and a half, and the average age, excluding the oldest, was approximately one year, nine months.

The age at onset of the spells ranged from three to 24 months, the average being a little over 10 months. The frequency of spells ranged from eight spells in a year to as many as 10 or 15 a day.

In several cases, strained relationships within the family were obvious. In four cases, there were conflicts about feeding, and in three, about toilet training. In three families there was frustration from relatives living in the family, and in two there was marital friction. In at least two, the parents seemed to be overly demanding and strict. There was a family history of breath-holding spells in four.

In six of the children the spells ceased in a few months. One was much better two years later, and one, according to the family doctor, became an epileptic. There was no follow-up on three of the children.

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NEWBORN INFANT DEVELOPS OWN POLIO IMMUNITY

Infants born while their mothers have acute polio may be infected without showing outward signs, two Maryland physicians have said.

In the Journal of the American Medical Association, they told of a newborn baby who acquired polio from his mother before or during birth, developed his own immunity to the disease, and never showed signs of infection.

As far as the doctors know, this is the first reported case of infection without outward signs in an infant born during the mother's acute phase of polio. Further investigation, though, may show this sort of infection to be common, they said.

The infant, born about two weeks after the mother developed an acute case of polio, was "normal" and remained "well" at all times. However, laboratory examination of rectal swabs

showed him to be infected with the same polio virus as his mother was.

Examination of his blood serum revealed many antibodies (agents developed by the body to combat foreign substances such as viruses). At three months, the infant's antibody level was approximately the same as his mother's.

He apparently manufactured his own antibodies, since the cord fluid at birth contained very few and he was never breast fed, they said. This indicates that the mechanism for manufacturing antibodies was well developed even in the first months of life, they said.

The infant probably acquired the infection before birth, since the placenta contained viruses. However, he may have been contaminated with the mother's virus during delivery, they said.

The report was made by Drs. Alexis Shelokov and Karl Habel from the laboratory of infectious diseases, National Microbiological Institute, National Institutes of Health, Bethesda, Md.

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SORE THROAT TREATMENT CHANGES OVER YEARS

A man with a sore throat today is better off than George Washington was when he had one in 1799.

During his fatal illness, which began with a sore throat, in December of that year, Washington was treated with "the best" eighteenth century methods—"bleeding," the application of "blisters" to the neck, gargles, inhalations, cathartics, and immersion of his feet in hot water, Dr. Noah D. Fabricant, Chicago otolaryngologist, said.

Now treatment for sore throats includes antibiotics and sulfonamides for severe cases and the "time-tried" methods of complete bed rest, adequate amounts of fluids, salicylates for the control of fever and irrigation of the throat with warm salt water for mild cases.

In Washington's day, the diagnostic method of chest thumping and listening was unknown and no one thought to examine his throat. His illness was diagnosed as "quinsy" (an abcess near the tonsils) and later as "cyanche trachealis," an indefinite medical term then in vogue for a severe sore throat that involved the vocal cords.

Although the exact diagnosis of his illness is a matter of dispute, it seems likely that a strain of streptococci organisms was responsible, Dr. Fabricant said in Today's Health, published by the American Medical Association.

In past years complications from "strep sore throats" were common, but now antibiotics and sulfonamides are effective weapons against the terror of streptococcus infection, he said. "Strep throats" usually start suddenly, with chills and high fever. Some patients develop a skin rash, so sometimes it is difficult to distinguish this disease from scarlet fever.

The "common, garden-variety" sore throat usually results from irritation or infection of the back wall of the throat (pharyngitis) or of the tonsils (tonsillitis), he said.

Acute pharyngitis is caused by many different types of microorganisms and viruses. The symptoms include sensations of burning and scratchiness, a constant desire to clear the throat, painful swallowing, fever, headaches, loss of appetite and a dry, harsh cough.

In the acute stages, pharyngitis gradually wears itself out, but bed rest, adequate amounts of fluids and salicylates are helpful. If the fever is or remains high, use of antibiotics and sulfonamides to prevent complications may be necessary, he said.

While gargling is popular, there is considerable doubt as to its value, Dr. Fabricant said. Experiments have shown that fluids fail to reach either the back of the throat or the tonsils, because the gargling causes the back of the tongue to meet the soft palate, closing off the back part of the throat. However, it is possible to irrigate that part of the throat with a syringe.

Various studies have shown that ordinary mouth washes "can do no more than wash," he said. They are in contact with the infected area for too short a time to kill the bacteria and viruses.

As in acute pharyngitis, antibiotics

and sulfonamides have taken the "sting" out of tonsillitis. Bed rest, fluids, easily swallowed foods and salicylates also help give relief.

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INFECTIOUS DISEASES STILL TAKE "IMMENSE TOLL"

"Top priority" in the U.S. health programs must be given to communicable diseases, because they most frequently attack "the young and vigorous . . . on whom the present and future productive power of the nation depends," a U.S. Public Health Service official said recently.

While "major killers of a half century ago" largely have been controlled, other communicable diseases still take an "immense toll" in death and disability among citizens of the U.S., Dr. Theodore J. Bauer, chief of the U.S. Communicable Disease Center, Atlanta, Ga., said in the Journal of the American Medical Association.

One of every 10 deaths is caused by a communicable disease. The situation is "far more serious" in the age group under 35 years, where the ratio is 1 to 4. In the older group it is 1 to 12. In addition the diseases cause the majority of absences from school and work. They also may lead to future disorders of the heart, liver, kidney, nervous system and other organs.

Public health workers aim toward the control of all communicable diseases, Dr. Bauer said. Control measures for diseases of today must be developed and research into diseases of obscure origin must continue.

If those "spectacular and dreadful" diseases of the past, such as yellow fever, typhus and smallpox, are to remain in check, constant watchfulness and effective use of available control measures are necessary, he said.

"Perhaps of greatest concern at the moment" are the "ultramicroscopic" viruses, Dr. Bauer said. They produce more than 40 known diseases, among them polio, the common cold, measles and mumps. The major problems in this field include finding the means of transmission, adequate methods of diagnosing and ways of controlling the diseases.

A recently developed problem is the appearance of bacteria which resist the action of antibiotics. While antibiotics have been "dramatically effective" against such bacteria-caused diseases as tuberculosis and scarlet fever, their effectiveness is being lessened by the appearance of the resistant bacteria. Ways of controlling these bacteria must be found.

Some of Dr. Bauer's comments in the Journal on individual diseases follow:

Poliomyelitis — This complex disease will continue to be an enigma until the basic factors governing its occurrence and spread are found. More efficient laboratory diagnostic tests are needed.

Viral hepatitis—The viral nature of this increasingly prevalent disease of the liver was found only recently. No control measures have been developed.

Insect-carried encephalitis—Man apparently only accidentally acquires viruses as they go through a complicated life cycle among other animals. In addition to the native encephalitis types, others exist in various parts of the world. It is not known what natural forces may introduce these foreign viruses among American insects and animals or what factors lead to their infection of man.

Psittacosis — Control of this pneumonia-like disease, which is spread by parakeets and some domestic fowl, requires cooperation of owners, producers and distributors in treating or destroying diseased birds. No immunizing agents are yet available for either man or birds.

Rabies—The virus recently was found in insect-eating bats, which suggests that more animals carry the disease than formerly was thought. The discovery points to the necessity of determining all animal species that can transmit the disease to man and domestic animals.

Smallpox—The last outbreak of 11 confirmed cases in New York in 1947 showed that "universal vaccination may be an accepted principle, but . . . is not universal practice."

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Published monthly at the office of the Secretary of the Board, Raleigh, N. C.
Entered as second-class matter at Postoffice at Raleigh, N. C. under Act of August 24, 1912

Vol. 71 APRIL, 1956 No. 4

COLUMBUS COUNTY HEALTH CENTER, WHITEVILLE, NORTH CAROLINA

CONTENTS

MENTAL HEALTH NEEDS AND RESOURCES IN NORTH CAROLINA†

Preliminary Report to the North Carolina Academy of Preventive Medicine of Committee Number One for the Study of Mental Health

BY FRED G. PEGG, M.D.*
Winston-Salem, N. C.

At a meeting of the Academy of Preventive Medicine at Chapel Hill, January 17, 1955, certain projects that might enhance the prestige of the Academy and serve to advance health were considered. Among them was the study of mental health, and two committees were appointed to carry out this study. The consensus of the Academy was that all phases of mental health should be considered; that the study should be continuous; and that long range objectives should be set up, with suggestions as to how to attain them.

Our committee was assigned "To con-

*Health Officer of Forsyth County and chairman of Committee One. Other committee members are: Drs. B. M. Drake and F. T. Foard, State Board of Health, Raleigh; and Dr. J. J. Wright, University of North Carolina School of Public Health, Chapel Hill.

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North Carolina Medical Journal

sider methods useful in determining the needs of the community in reference to services for the prevention or alleviation of mental diseases, including techniques and indices which might be useful." It soon became apparent that it would be difficult to limit our studies to the area specifically assigned. This matter was discussed with the chairman of the other committee, which had been assigned to consider a mental health program for a community which did not necessarily require a preliminary survey—for example, what clinics might be established, what education might be used, what services might be rendered, and how mental hygiene can be incorporated into public health services. It was decided to include other phases of mental health in our survey, and, in order to prevent duplication, to combine the reports prior to final presentation to the Academy.

General Survey of Mental Health Problems

The first step in this study was to make a general survey of the mental health problems and needs of the community. It was intended to get as much factual information as possible and, at the same time, to determine the thinking and reaction of the public to mental health generally. For example, what community mental health problems are considered most important, how can these problems best be met, what additional facilities are needed, and so forth. We discussed mental health with members of the medical profession, welfare departments, schools, juvenile courts, ministers, personnel directors of industries, social workers, psychiatrists, and others. All persons interviewed expressed great interest and seemed anxious to cooperate; however, the majority saw the problem from a limited point of view rather than as an over-all need. This attitude was to be expected, since each person was interested primarily in mental health as it affected his work. General information and attitudes in the survey were easy to obtain. On the other hand, specific and detailed data were, in most cases, non-existent.

When we began to compile the results of our studies, we were struck by the fact that many different people and groups were dealing with different phases of the problem. Since we were trying to conduct our study from the community point of view, we decided that it would be worth while to classify mental health problems as nearly as possible as they were seen by the people of the community who deal with them from day to day.

Mental Health Problems as Seen by the Community

The psychotic group

The group in which the community seemed to be most interested was the *psychotic,* which includes those individuals who have been treated and returned to the community, those under treatment, and those who are psychotic but who have not been diagnosed.

It is not too difficult to determine the approximate number of psychotic patients in a community. Records of those committed to mental institutions are available in the office of the clerk of the court. Certain cases being treated in private institutions are not recorded, but this number is relatively small. The number of new patients who require admission to a hospital each year is approximately 75 per 100,000 population. Most of these require treatment for a year or more, some for much longer, and many for life. Thus the care of the psychotic patient becomes tremendously important. No other single medical problem is of such concern to the community. While the incidence of tuberculosis is close to that of psychosis, the shorter hospital stay and the higher recovery rate of tuberculosis patients make this disease second in importance.

Let us look for a moment at the problem the psychotic creates in the community. Considerable stigma is attached to mental disease, and people are still reluctant to acknowledge that a member of their family is insane. They tend to delay treatment until it becomes absolutely necessary, and even then try to keep it as secret as possible.

Furthermore, the average individual is poorly informed as to the early symptoms of insanity. Yet the patient rarely has any insight into his condition and must depend on his relatives and friends to make or suspect the diagnosis and get him under treatment. Consequently, the diagnosis is frequently delayed until the disease has advanced beyond the early stages and the patient has become unmanageable. Only then does the family reluctantly accept his condition and recognize their need of advice. Usually they consult the family doctor, who all too often is not able to give much help. The average physician is not well acquainted with the various types of mental illness and has little interest in such patients. As a rule general hospitals will not accept psychotic patients for treatment, and it is often difficult to make a proper diagnosis in the home. As a result, many patients have to be confined in local jails, which, of course, lack adequate diagnostic and treatment facilities. Treatment is thus further delayed and the chances of arresting or curing the diseases are greatly diminished.

Not only is diagnosis delayed, but often facilities in state hospitals are not readily available, and it is necessary to keep the patient confined in jail for a period of several days or even weeks. This situation usually serves to aggravate his mental disorder.

Most psychotic patients are treated in our state psychiatric institutions, and a good percentage are eventually returned to the community from which they came. Unfortunately, little or no follow-up facilities exist. Almost no social work is done, and the patient returns to the same home and community problems that helped to bring about his break-down in the first place. Frequently the family has not been told how to help him re-adjust to home and community life, and there are few clinics where he can continue to receive psychiatric help and guidance. For this reason, a relatively large number of patients suffer unnecessary relapses and have to be re-admitted to the hospital.

Emotionally disturbed children

Community interest was most high in regard to children with emotional or personality disturbances so severe as to interfere seriously with their adjustment to school and family life.

Unfortunately, it is almost impossible to evaluate this problem statistically. It is certainly widespread. One pediatrician, on being asked what percentage of his practice consisted of emotional problems, replied that at one time or another every child needs guidance or help with this type of problem; however, only about 5 per cent of his patients came to his office primarily because of emotional disturbance.

In a typical community the juvenile court handled 550 cases per 100,000 population; however, in only 135 cases was the child involved considered to be definitely delinquent. Despite the interest of parents, schools, child guidance clinics, and so forth, exact figures are not available. We were interested in finding out what the community considered were the causes of delinquency and emotional problems in children. The majority seemed to blame the failure of the family and the community toward the child. It was frequently pointed out that physical and mental handicaps were also a big factor. Most communities appear to be much better able to handle the problem child than they are the psychotic patient.

An unfortunate misconception in regard to child guidance clinics seems to exist in many communities. Unintentionally, the public has been led to expect more from such clinics than they can possibly offer. In fact, many people seem to think that the establishment of a clinic will solve all their mental health problems. They have worked to establish clinics with this idea in mind, only to find that the clinics were unable to care for anything like the number of children needing help. This, of course, is no fault of the clinic; but the public should be informed as to what a given clinic can do, and should not be led to expect miracles.

In setting up a child guidance clinic

in an area, it would appear wise to let the public know beforehand that a clinic designed to meet the needs of 50,000 or 75,000 people cannot be expected to serve a quarter of a million population. This is what has happened in several areas in North Carolina.

Psychoneurotic adults

Adults with psychosomatic and psychoneurotic symptoms severe enough to incapacitate them partially or completely were of little interest to the community generally; however, these persons were of considerable concern to their families and to physicians. Such illnesses should probably be regarded as having both physical and emotional aspects. It is impossible to determine the number of individuals who fall into this classification. Many general practitioners say that from 30 to 50 per cent of their patients have illnesses of this type. Some clinics report that from 60 to 70 per cent of their patients come primarily because of psychosomatic symptoms. Actually the figure is probably much lower than indicated because patients of this type tend to drift from one doctor to another and remain almost constantly under medical care. Most doctors easily recognize these patients, but few are inclined to give the necessary time for handling such cases properly. The number referred to psychiatrists is relativaly low because of the scarcity of psychiatric help and the high cost of treatment.

Mentally retarded children

The number of mentally deficient, or retarded, children depends entirely on the method of the classification used, and may vary from 2 or 3 per cent to 10 per cent of the total child population. The number of severely retarded children is relatively low, and the diagnosis is easily made. At present little can be done for these children, and they become candidates for institutional care.

The larger group of less retarded children, probably approaching 8 to 10 per cent of the population, presents a greater problem. They are unable to do normal school work or enter any of the skilled trades or professions, and are therefore more likely to become delinquent or emotionally disturbed. Medical treatment up to now has little to offer; however, if mental retardation could be recognized early and special educational and vocational provision made, the community's problem would be considerably lessened and many potential delinquents and petty criminals might be made into useful citizens. Early recognition and the provision of special therapeutic and educational facilities seem to offer the only answer at present.

Most communities seem to understand the problem of mental retardation and are trying to do something about it. However, the high cost and lack of trained personnel in our school system make progress slow.

Special problems

Psychopathic and constitutionally inadequate personalities, chronic alcoholics, mentally deficient adults, and deteriorated cases create widespread and distressing social problems. The drunkards, the ne'er-do-wells, the petty criminals are encountered in every community. They clog the courts and swell the relief rolls of the welfare departments. They are everybody's concern, but the public attitude is still largely one of contempt and hopelessness.

In recent years Alcoholics Anonymous has done some excellent work in rehabilitating the chronic alcoholic. Clinics are now being started in some areas to which alcoholic individuals can come for medical, psychiatric, and social service. The results have been promising, and the public attitude toward the alcoholic is changing.

The psychopathic, mentally retarded, deteriorated cases are less hopeful. Psychiatric, psychologic, and social studies of these individuals, with records available to courts, welfare, and social service, would be of help. Mental and vocational evaluation could then be made and possibly some type of supervision devised to keep many of them at work and out of mischief. Supervised

workshops where they could be kept indefinitely might be set up. No one seems to have a ready or easy answer.

Resources and Needs

The second part of our survey was aimed at determining the resources and needs for a community mental health program. Since these vary considerably, it was obvious that no one community could be used as a basis for a study of this type.

When this study was completed, we realized that our findings were quite similar to those obtained by the Department of Mental Hygiene of New York State and published in 1954. We are therefore quoting extensively from the New York report, "New Program for Community Mental Health Services," noting where our findings vary. We believe that the similarities between the two studies indicate that mental health programs and problems throughout the country are very much alike.

> . . . Nowhere in the State (New York) were there adequate services at the community level . . .
>
> Services were unevenly distributed throughout the State. Except for a few localities, mental hygiene clinics were the only mental health service and the range was from one team for 30,000 people to one team for 353,000. (Corresponding figures in North Carolina range from 400,000 to 700,000.)
>
> At the local level, there exists no single governmental agency charged with responsibility for community mental health. Significant parts of a total mental health program are provided in many communities by education authorities, by welfare officials, by public health departments and by courts, but nowhere is there a central planning body for mental health services. The result is overlapping, duplication, and gaps in service, and overextension of their programs by some agencies.
>
> Fragmentation of services at the local level was aided by the fact that financial support, although limited, was available from a number of state departments and agencies . . .
>
> The mental hygiene clinic is the community service which is in greatest demand at the present time. This is a relatively high per capita cost service requiring psychiatrists, psychologists, and psychiatric social workers as the nucleus for the clinic team. This high cost coupled with the shortage of trained personnel makes it necessary to plan services for fairly large population groups.
>
> In 1948, the former Federal Security Agency recommended a ratio of one psychiatric clinic per 100,000 population. However, recent experience in the operation of community mental health clinics indicates that a more realistic estimate of need may be one full-time clinic for each 50,000 people . . .
>
> Any permanent program must take into account the fact that, up to the present, mental health services have been developed by a variety of public agencies and by a large number of voluntary organizations. The present inadequate level should not be worsened by setting up a system which would compel the giving up of any existing qualified service. Moreover, comprehensive programming for community mental health requires the combined efforts of health, education, welfare, judicial, and correctional agencies, both public and private. It is equally true, however, that there is an urgent need for coordination and integration by a single, responsible agency of local government . . .
>
> There are five categories of community health services.
>
> *The first category is the one which includes the greatest volume of services outside the hospital. These are involved with the process of making an early diagnosis and providing early treatment for individual cases of mental disorder.* In this category may be included all of the mental hygiene and child guidance clinics, in-patient psychiatric services in general hospitals, and the case finding efforts of school systems, welfare agencies and public health departments.

The second category of service in the community is that of rehabilitating the discharged or convalescent patient from the mental hospital. The after care clinic system has grown up to a remarkable extent and covers most of the communities of the state. Although there are weaknesses in the present intensity of rehabilitative services to convalescent and discharged patients, nevertheless an enormous number of people are seen every year in the after care clinics of the state hospitals. In some communities there are the beginnings of locally operated programs for rehabilitation, particularly for discharged patients. (Our rehabilitative and follow-up services on both the local and state level seem to be inferior to those of New York State.)

A third category of community mental health services may be labeled consultative. These are services rendered by trained mental health personnel to professional staffs of other agencies such as welfare departments, schools, courts, public health departments and so on. They deal with questions regarding the mental status and the probable abilities of an individual to fit into the usual practices of the agencies seeking the consultation.

A fourth category may be called educational. Under this heading may be included all those activities carried out by mental health personnel to communicate to other professionals and to the general public what has been learned from the clinical relationships of mental health personnel regarding the problems of human personality. These activities are directed toward teachers, physicians, ministers, parents, policemen, and all other individuals who have, because of their occupational or other relationships, special responsibilities for the welfare and the mental health of other persons. This field of mental health education has only begun to develop. There are many untapped areas of work, areas where almost nothing has been done systematically up to the present time to improve the understanding of occupations which have a crucial relationship to the thinking and feeling of people about personality.

The fifth and last category of community mental health services may be called prevention. At the present time, it is the least voluminous of all of the mental health activities, although it is probably the most important. It is true that all of the four categories previously mentioned have been considered to be preventive or prophylactic. This fifth category, however, refers to specific efforts so to deal with facts of community life as to reduce the frequency with which personality disorders occur. Two general divisions of this category may be described—those where the disease has an organic cause which is preventable; and those where we believe the disease has a psychological cause. With respect to the first division, preventable causes can be grouped into trauma, infection, malnutrition and poisoning. Examples are venereal disease control programs, the problem of rubella during early stages of pregnancy, the adequacy of nutrition, during pregnancy, the problem of minimizing complications of brain injury, and the treatment of the infections of childhood like measles so as to avoid encephalitic complications. In the matter of psychological causation, there is need, for example, to be concerned with the maintenance of the primary relationship a young child has during the first years of life. Prevention here encompasses the implications of maternal separation, of adoption and child placement practices, and of visiting regulations on the pediatric wards of general hospitals.

No community can say that it has a complete community mental health program if it does not take into consideration all five of these activities and if there is not one agency and a group of people professionally preoccupied with the problems of seeing to it that all five of these categories

of services are provided to the people of the community to the extent now possible.

To these needs we have added a sixth category which could be labeled statistical data. Such data are needed for several reasons. It is necessary if the community is to understand and appreciate its immediate problems in mental health, as well as in setting up a well planned program. It is also necessary for establishing base lines for comparison with future statistical data to determine trends in mental health problems. In no area in the local community did we find a serious attempt to compile statistical data on mental health, even though in some instances such information and records could be rather easily obtained. For example, the clerk of court's office has records of admissions to our state institutions for the treatment of insanity. The welfare department has records of juvenile delinquency, admissions to correctional institutions, feeble-mindedness, and so forth. It would appear that the compilation of such data is essential to the development of a good community mental health program.

How Well Are our Present Needs Being Met?

In an effort to answer this question, two simple studies were made. The records of admissions to our state hospitals for the past year were surveyed to find out whether or not the patients had been seen by psychiatrists and if they had received proper diagnosis and treatment prior to committment. It was found that 6 per cent had been seen by psychiatrists and could be classified as having had adequate study and treatment. Nineteen per cent had been seen by a psychiatrist in consultation only, and apparently to confirm the diagnosis and sign commitment papers. Seventy-four per cent had not been examined by a psychiatrist at all, and apparently few, if any, of these had received adequate study or treatment.

The second study was carried out by sending a questionnaire to a small group of physicians. Although the group was small, it was designed to represent a cross-section of the medical profession. The questions asked were: (1) "What percentage of the patients you see in your office do you feel could be materially benefited by psychiatric treatment?"; and (2) "What percentage of the patients you feel would benefit by psychiatric treatment are actually referred to psychiatrists?" As was to be expected, the number of patients classified as needing psychiatric treatment varied considerably, depending on the type of the physician's practice. Thus, the general surgeon said approximately 10 per cent, while the replies of the internists and general practitioners ranged from 30 to 40 per cent. The over-all average was about 25 per cent. The percentage of patients actually referred to psychiatrists did not vary so widely. Among white physicians the proportion ranged from 1 to 2 per cent; among Negro physicians, 0.1 to 0.5 per cent.

As a third measurement, we decided to consider the proposed mental health clinic set-up in North Carolina on the basis of population the clinics *will have to serve,* and the estimated number that such clinics *can serve adequately.* Eight clinics must serve the entire population of the state—approximately 4,500,000. This would mean that each clinic must serve about 550,000 persons, or from five to ten times the number it could be expected to serve adequately. It seemed safe to conclude from evidence of this type that mental health services are inadequate, and even though the number of psychiatrists and other workers may increase considerably over a period of years, at no time in the foreseeable future will personnel be commensurate with the needs.

Summary and Conclusions

In this survey we have tried to approach mental health from the standpoint of the local community and have considered three different aspects of the problem. What are the problems of mental health as the community sees them? What are the mental health needs of the local community? How well are these needs being met?

We realize how inadequate this sur-

vey has been. We realize that it has not been conducted in an accepted scientific manner and that it has not really revealed anything that we did not know before. We believe, however, that it has some value and that from it can be drawn certain conclusions which may help to clarify our thinking and planning in mental health.

1. *Education* is one of the primary needs in mental health.

a. Although the psychoses constitute one of the most common serious diseases, the public is poorly informed about the early signs and symptoms and how to obtain early diagnosis and treatment. This situation is made worse because most mentally ill patients are taken away from the local community and treated in state institutions. For this reason, the public does not appreciate the extent and seriousness of mental disease. The average hospital does not provide diagnostic and treatment facilities. As a result, general practitioners have little interest in the handling of mentally ill patients. These factors have caused mentally ill patients to receive late and inadequate treatment and care.

b. Greater stigma is attached to mental illness than to any other disease, with the possible exception of syphilis. Why? There are several partial answers. The public has been led to believe that mental illness is something mysterious for which there is no explanation. People associate it with some hidden heredity taint, some confused Freudian concept or sex obsession, which really means nothing to them but which serves to attach a high degree of stigma to the condition. Would it not be much simpler and wiser to admit that we do not know the cause or causes of mental illness any more than we fully understand the causes of rheumatoid arthritis or atherosclerosis, but that pathologic and physiologic causes exist just as in other diseases? It has not been long since the causes of rickets, diabetes, and paresis were unknown.

2. Our present approach to mental health problems is unrealistic. The statement, "too little too late," could be applied to our thinking and planning. We cannot hope to have, in a reasonable time, enough trained personnel or funds to do the job with our present plan of attack. Obviously, we must explore ways and means of achieving a mass approach. We should seek advice and help of other groups particularly general practitioners, welfare departments, and schools.

3. Each local community should invest some responsible group or board with the authority to plan and carry out a mental health program. Up to now, various agencies and various groups have attempted, in a limited way, to deal with the problem. Results have not been good and unless the responsibility is assigned to one group, future planning and coordination will be inadequate.

4. At present relatively little attention is paid to the psychotic patient in the local community. Such patients are often confined in jail, where diagnostic and treatment facilities are lacking and where the environment tends to aggravate the patient's condition. General hospitals should provide diagnostic and treatment facilities for mental patients.

5. Local communities have made relatively little effort to gather or analyze statistical data on mental health problems. It would not be difficult for local health departments or other agencies to compile statistics regarding mental illness and other phases of mental health. Such an effort would serve to focus community interest on the importance of these problems and would be of considerable help in evaluating trends in mental disease in the future.

6. Finally, we feel that we know only a few of the answers to the problem of mental health and would suggest that the Academy of Preventive Medicine continue its study.

NOTES AND COMMENT

BY THE EDITOR

PEDIATRICIAN RECOMMENDS "FENCING IN" TODDLERS

An Evanston, Ill., pediatrician has recommended that preschool children be separated from "adult gadgets and trouble" for at least half of their play time.

Dr. E. Robbins Kimball said this will help the child in his adjustment and adaptability by allowing him to escape the adult "no" for part of his time and by slowing down the expansion of his world to the point where he can handle it.

A child does not really understand what belongs to him and what belongs to his parents until he is four years old. Until then he should be relieved of the responsibility of not touching the possessions of adults for half of his playing hours (four hours a day), Dr. Kimball said in the Journal of the American Medical Association.

Because parents cannot live in a nursery, Dr. Kimball suggested that the child be separated from the adult world by means of a play pen, gated room or porch, fenced yard, or nursery school, depending on his age.

Such "compartmentation" gives nervous mothers relief and decreases the number of household accidents. In addition, its prevents the child from developing habitual patterns of resistance to adults as they try to direct him.

In a study of 363 children, followed for five to 10 years, Dr. Kimball found that a child adapted to new situations more readily as soon as he escaped the adult "no" for half of his play time. In fact, toddlers' adaptability increased fourfold with "fencing in."

He also found that being a first child, having nervous parents, and not being breast fed, had an adverse effect on the child's adaptability.

Many first children had difficulties in adjustment because their parents, being unfamiliar with growth, expected them to perform at about twice their developmental level.

"Many of these parents would have been indignant if a school system had tried to force their nine-year-old child to master a topic such as calculus. Yet, many persisted in teaching their two-year-old the differences between mine and thine, not to spill food, not to suck his thumb, to give up his bottle, and many other habits that he was not ready to master until twice that age," he said.

Dr. Kimball found that children who had trouble adapting "looked with questioning, frequently with apprehension, and too often with great fear at all adults" during examinations. Others, instead of being cautious, were boldly aggressive and ignored direction. Children who showed more adaptability were calm and smiling and enjoyed the examination.

PYORRHEA REQUIRES BOTH DENTAL, MEDICAL CARE

Diagnosis and treatment of bleeding gums must be a cooperative project of doctor and dentist, an editorial in the Journal of the American Medical Association said.

"Periodontal disease (pyorrhea) is by far the major cause of tooth loss in individuals over 35 years of age," it said. Inflammation of the gums is present to some degree in most persons who eat chiefly soft and cooked foods, and gums may bleed from a variety of causes, local or systemic.

Local irritation of the gums is almost always the primary cause, although occasionally some underlying systemic factor may cause bleeding in the absence of local irritation. Most frequent local causes are tartar accumulation, injury, abnormalities in the bite, food impaction, and ill-fitting dentures or fillings.

It would be a mistake, however, to consider all gum bleeding as a sign of uncomplicated gingivitis (inflammation of the gums) or periodontitis (inflam-

mation of tissue surrounding the tooth), as is frequently done, the editorial said. The bleeding may be a sign of serious general disturbance, such as scurvy, pellagra, diabetes, leukemia, pregnancy, allergy, or lead, bismuth, or mercury poisoning.

The editorial said that local treatment by the dentist can correct the mouth condition if there is no underlying systemic disturbance. But, if there is an underlying cause, treatment of that condition alone will not stop the bleeding. There must also be local treatment by the dentist.

Prescription of vitamin supplements as the sole treatment for bleeding gums is "irrational and ineffectual," he said. Antibiotics may serve to relieve the acute inflammation, but the condition almost invariably returns as soon as the antibiotic levels are no longer effective. Removal of tartar and other local factors is necessary to achieve lasting effects.

Physicians and dentists must frequently refer patients to each other for dental or medical surveys, since the best results in the treatment of pyorrhea can be obtained only when all the causative factors, usually more than one, are discovered and treated, it said.

EARLY TRAINING MAY PREVENT CHILD'S SPEECH DEFECTS

Guidance of mothers in the early management of speech behavior of their children may help prevent speech defects in mentally normal children, two physicians and a nurse said recently.

A study of 290 mentally-normal children with speech defects was reported in the Journal of Diseases of Children, published by the American Medical Association. It was done by Dr. Benjamin Pasamanick, Columbus, Ohio, Frances K. Constantinou, R.N., Baltimore, and Dr. Abraham M. Lilienfeld, Buffalo, N .Y.

In earlier investigations the physicians found that childbirth abnormalities are significant in the background of cerebral palsy, epilepsy, mental deficiency, and some childhood behavior disorders. They thought speech defects might also be related to such abnormalities, because specific injury to the brain in adults has been reported to result in speech defects and because speech disorders are very common among children with cerebral palsy and mental deficiency.

Records of 290 children, born in Baltimore since 1940, with speech defects but without mental deficiency or cerebral palsy showed no more complications of pregnancy and delivery, prematurity, or abnormal conditions of the newborn than did records of a similar number of normal children without speech defects.

However, the discovery that there were more twins and more later-born (third, fourth or fifth) children in the speech defective group suggests that psychological and social factors play a role in causing speech defects, they said.

It is possible that twins who have more contact with each other than with older children learn from each other immature, faulty, speech patterns which become fixed due to their closeness and mutual comprehension of their impaired speech, the authors said.

It might also be that later-born children develop speech defects because of rivalries, disorganizations, and frustration in large-family living. The impatience of older family members with speech in the younger children or the lack of attention from a busy mother with several children might also contribute to the production of speech defects, they said.

The prevention of some of these socially and psychologically disabling disorders may lie in the guidance of mothers in the early management of their children, they said, adding that further study of these factors is necessary.

The study was aided by a grant from the Foundation for Mentally Retarded and Handicapped Children of Baltimore.

DOCTORS NOTE REDUCTION IN OPERATIVE RISKS FOR AGED

A comparison of records for the last decade with those of 20 years ago show the falsity of the adage "the older the person, the greater is the operative risk."

Drs. Carl A. Moyer and J. Albert Key found that for many operations the risks now are the same for persons over 60 years as for persons under 60. Survival rates for all ages have increased greatly in the last decade, and especially for the older group, they said in the Journal of the American Medical Association.

One reason for the change is improved treatment of postoperative infection through the use of antibiotics. This is particularly true for cholecystectomy (removal of the gallbladder) and appendectomy, which used to have high death rates because of infection. The outlook is now about as good for old as for young patients.

Greater skill in administering anesthetics, fluids, and blood have also helped to reduce risks. Anesthesia, long considered an important factor, actually is comparatively unimportant, except in operations which otherwise are of little risk, such as those for hernia, appendicitis, and the thyroid disorders, they said.

Their study showed that aging itself is not "an insuperable barrier" to performing needed surgery on more patients without pushing over-all risk beyond an acceptable level, they said.

The extent of the surgery is not as important in determining operative risk among the aged as is the duration of physiological upset before, during, and after the operation, they said. Although it is hard to evaluate the degree to which a patient's strength has been undermined by a long period of preoperative illness, this is important in determining the risk.

Some rather involved operations, such as removal of a breast or cholecystectomy, have low operative risks because the following physiological upset is relatively brief, while some less complex operations with long recovery periods have significantly higher risks. The operative risks are similar for both old and young in thyroidectomy, hernia operations, and partial removal of the stomach for duodenal ulcers, they said.

Heart-lung diseases also have become less important in determining operative risk for the aged. In fact, except for some very serious conditions which increase the risk regardless of age, the cardiac-pulmonary condition of the aged patient has little effect on operative risk, they said. Conditions which have an effect at any age are angina pectoris, repeated myocardial infarction, uncontrolled cardiac failure, and malignant hypertension.

REASONS GIVEN FOR DELAY IN SEEKING SURGICAL CARE

A new explanation of the familiar experience of putting off a visit to the doctor even when danger signals are present was given recently by a group of Cincinnati researchers.

One of their major findings in a survey of Cincinnati surgical patients was that people do not delay just because they aren't aware of what the danger signs mean.

In fact, among 200 patients the person who was totally ignorant of the importance of danger signals was "extremely rare," indicating that the medical profession and medical publicists have done a good job of educating the public, they said in the Journal of the American Medical Association.

Of the 200 patients surveyed, 23 had no opportunity to delay seeking surgical treatment, and no information was obtained on 11. Of the 166 patients who had an opportunity to delay, 71 did so, they said.

Many of these delayed, not because of ignorance of the danger signs' meaning, but because of various personality and emotional factors, the survey showed.

In addition, it disproved several other reasons frequently given as causes of delay. Delaying patients were of all ages—not "young and foolish" or "old and fatalistic." There was no difference in intelligence between those who de-

layed and those who did not. Sex was not a factor; men and women were almost equally represented in both delay and nondelay groups.

The survey neither confirmed nor denied the idea that cost influences delay. All of the patients were in a hospital which provides care even for those who cannot pay, but some might have delayed because they were ashamed of having to accept free treatment.

Their study also disproved the idea that delay is a symptom of one or another specific type of mental illness. There was no significant difference in the psychiatric diagnoses of delayers and nondelayers.

The researchers did find, however, that delay resulted from various conscious and unconscious factors operating before, during, and after recognition of a sign or symptom. The kind of illness suffered could play a part in the delay, but was not by itself a sufficient reason, they said.

While the medical profession and publicists have been successful in reaching most persons with straight information about disease, there is still much to be done to overcome these emotional factors causing delay, the authors said, suggesting that there be some changes in the emphasis in public education and that more attention be paid to the emotional factors during medical and surgical treatment.

Making the report were James L. Titchener, M.D., Israel Zwerling, M.D., Ph.D., Louis Gottschalk, M.D., Maurice Levine, M.D., William Culbertson, M.D., Senta Cohen, Ph.D., and Hyman Silver, Ph.D., from the departments of surgery and psychiatry, University of Cincinnati College of Medicine. Dr. Zwerling is now at Albert Einstein College of Medicine, New York. The study was supported by a grant from the National Institutes of Health, Bethesda, Md.

HARDENING OF ARTERIES FOUND IN ELEPHANT

Heart attacks resulting from the effects of hardening of the arteries can strike elephants as well as men and dogs, three California doctors said.

They reported an autopsy on a female Indian elephant who died of acute heart failure secondary to severe arteriosclerosis in many small arteries around the heart.

According to the physicians, their report in Archives of Pathology, published by the American Medical Association, is the first one describing arteriosclerosis in elephants. It has previously been found in humans, cats, dogs, pigs, birds, chickens, and cows.

Few autopsy reports on elephants have been made, but studies go back to ancient Greece and Rome, the authors said. Both Aristotle, the Greek philosopher, and Galen, a Greek physician who lived in Rome about 200 A.D., reported elephant studies, with Galen describing a heart condition as "a bone in the heart."

The San Francisco elephant was at least 47 years old and had lived in the San Francisco Zoological Gardens since 1925. The animal, which appeared healthy the night before death, was found lying on its side and unable to rise a few hours before death.

Autopsy showed severe arteriosclerosis of the major arteries. In the small coronary arteries, the disease was similar to that observed in birds, dogs, cats, and humans. However, deposits of fatty substances, usually found in the small arterial walls of humans with similar disease, were absent. Similar narrowing of the arteries without fat deposits may occur in old dogs and cause sudden death, they said.

The physicians said that heart failure occurred in the elephant apparently because the narrowing of the small coronary arteries diminished the blood flow to the heart. The same thing has happened in human beings. Not only are the physiological occurrences similar in man and the elephant, but the same terms—"acute myocardial failure" due to "coronary insufficiency"—are used in autopsy reports to describe the conditions.

Drs. Stuart Lindsay, San Francisco, Richard Skahen, Oakland, and I. L. Chaikoff, Berkeley, from the departments of pathology and physiology of

the University of California School of Medicine, did the work under grants from the Alameda County Heart Association and the United States Public Health Service.

SOAP, FACE TISSUES MAY CAUSE DERMATITIS

It apparently isn't possible to put out a product for use on the skin that won't cause somebody, somewhere, to break out in a rash, according to two reports.

A new product might be used safely by two million people but not by the one who is sensitive to something in it. Doctors treating hard-to-explain skin troubles often have a hard time finding a solution unless they can discover the individual's particular sensitivity. The list of possible causes of sensitivity is long.

Two more items—an antiseptic soap and facial tissues—were added to the list by reports in the Journal of the American Medical Association.

The report by Irvin H. Blank, Ph.D., of the Harvard Medical School dermatological research laboratories, Boston, said that ordinary soap generally won't bother anybody. But excessive use might be partly responsible for skin trouble or aggravate a preexisting skin condition among a few people. And some rare individuals have been found to be sensitive to dyes or perfumes in otherwise harmless soap. Dr. Blank said he has now found this is also true of a soap containing a chemical intended to make it antiseptic.

In the other report, Drs. Samuel M. Peck and Laurence L. Palitz, New York, said so-called "wet strength" facial tissues, which have been treated to make them more moisture resistant, might bother some people.

Dr. Blank said the presence of a chemical (tetramethylthiuram disulfide) in an antiseptic soap causes rashes among persons already sensitive to the chemical from contact with rubber products containing it. However, few other persons appear to be sensitive to the chemical in the soap. In a 17-month period only about one case of dermatitis for every two million bars of soap sold was reported to the manufacturer, who has kept close watch on the situation. Dr. Blank concluded that there appears to be no more allergic reactions to the soap among ordinary users than there were before the addition of the chemical.

The New York physicians found that three of 50 persons who underwent various tests were allergic to synthetic resins, agents used to make "wet-strength" facial tissues more moisture resistant. There were no reactions among the patients to tissues without the resins.

Tissues containing these resins may be considered as a cause of dermatitis, especially in the presence of breaks in the skin, such as those following a cold, the doctors said.

CHRONIC ILLNESS GROUP TO DISBAND

The Commission on Chronic Illness, founded in 1949, will end its activities as an incorporated organization on June 16. It held its last meeting Feb. 9-10 at the Park Sheraton Hotel, New York.

The work of the commission will be taken over by its founders, the American Hospital Association, the American Medical Association, the American Public Health Association, and the American Public Welfare Association, and other permanent agencies concerned with chronic illness.

Among the major projects of the commission have been a study of the prevalence of chronic illness and the needs for care of the chronically ill in an urban and a rural area, a study of the characteristics of patients requiring long-term care in institutions, and a study of 12 organized home care programs.

An editorial in the Journal of the American Medical Association said the A.M.A.'s council on medical service would assume responsibility for the Chronic Illness News Letter on Feb. 1.

The 30 members of the commission represent industry, agriculture, education, welfare, religion, journalism, law,

labor, public health, medicine, hospitals, government, and the public.

"The commission is to be congratulated on its accomplishments, and it is heartening to know that, although the commission is officially to be disbanded, its work will continue without interruption," the editorial concluded.

DOCTORS ENDORSE HEALTH GROUPS' ADVICE

A recent survey has shown that the average doctor strongly endorses the mass education programs of vountary health groups and thinks they have been influential in getting people to the doctor in earlier stages of illness.

He is convinced that more people actually do come to his office sooner than they did 10 years ago, especially in the case of cancer.

The average doctor surveyed believes that all adults should get a general physical checkup every year and thinks it is very important for the public to be informed about health and medical matters.

The survey is one of a series conducted by the National Opinion Research Center, Princeton, N. J., under a grant from the Health Information Foundation. Through a supplementary grant from the American Cancer society, 500 doctors named as personal physicians by individuals were interviewed concerning their views of the educational programs of the cancer group and various other organizations.

The survey, reported in the Journal of the American Medical Association, showed that:

—Between 92 and 100 per cent of the physicians say the patient should see a doctor right away about symptoms (such as a sore that doesn't heal, an unusual bleeding or discharge, or a persistent cough) which might signify cancer.

—Seventy-seven per cent say all persons should have an annual check-up, although 55 per cent say they do not "make a point of recommending regular checkups." One doctor in eight says that preventive checkups in the absence of any complaint are not worth the trouble if the patient generally feels well, while another one in 10 says they are useful only for persons past a certain age or with a particular medical history.

—Interviews with the general public show that 80 per cent of adults endorse the principle of a general physical checkup every year, "even if a person is feeling all right," but only three out of 10 persons even claim to get such checkups in actual practice.

—Monthly breast self-examination for cancer is approved by 79 per cent of the doctors, while semiannual pelvic examinations for all women over 35 years are approved by 71 per cent.

—Semiannual chest x-ray examinations for all men over 45 are approved by only 42 per cent of the doctors.

—Ninety-eight per cent of doctors believe the mass education programs on such conditions as heart disease, cancer, and tuberculosis have served a constructive purpose.

—In response to the question, "Do you believe these programs have done any harm?", 56 per cent replied, "No, no harm at all," while 44 per cent answered, "yes," and almost all of these referred in some way to the arousal of fear. However, only 7 per cent suggested less emphasis on fear of the disease in information programs and fund-raising appeals. Three-fourths of the doctors could not name any activity they would like changed or curtailed, and almost half of them suggested expanding activities. Seventeen per cent suggested more public education.

RESEARCH NEEDS PUBLIC SUPPORT, PATIENCE

Patience, as well as financial and moral support by the public, is necessary if the great scientific advances of the last decades are to continue, a Chicago researcher said recently.

Dr. Louis N. Katz criticized the "ballyhoo" now surrounding scientific research and the too-frequent demand that "one new fact be returned for each quantum of dollars invested." Great discoveries are not delivered on call; they evolve through the deliberate

activity of a creative mind, Dr. Katz said in the Journal of the American Medical Association.

Everyone is familiar with the great advances in many fields of medicine, which have replaced fear with hope. This is due, he said, to the investigators and to the public support of research.

Such advances will continue to be forthcoming, as they have in an ever-increasing stream during the last few decades, if the public will "utilize its energies to help recruit the creative minds, to prepare the proper climate for their work in terms of space, equipment, assistants, funds, and social acceptance, and then sit back and patiently await results," he said.

Because industry has been successful by harnessing men together on an assembly line, many people believe that research results can be accomplished in the same way, but this is not true, Dr. Katz said. Researchers must have the assurance that they will have long-term support and that they will not have to fit into "the tight corset of a project application."

Production in research is becoming one of the most common measures of a man's ability and right to advance. Sometimes this measure is weighted by the number of papers written and not by the quality of them. This emphasis on output sometimes influences the amount of support an institution receives, which in turn affects its size. Unfortunately, he said, bigness is becoming confused with goodness, with too many people judging an institution by its size rather than by the attainments of its scholars.

In addition, research men work today in a fishbowl, with their reports avidly inspected by the lay press, radio, television, and magazines. Others are "helpless victims of publicity" because the institutions in which they work feel they must "sell the public" on the work being done.

Dr. Katz also criticized the current approach in research of first building an elaborate plant and acquiring tools, and then "madly searching" for ideas. The ideas must come first, followed by the acquisition of the proper research tools.

Part of the trouble lies in the current use of project grants, which demands that an investigator outline in advance his aims and expected accomplishments. Research is not that simple and cannot be compartmentalized in "short-term packages," he said.

He called for public support of long-term investigations without demanding immediate results and for the encouragement of persons already in the field of research and of those wishing to enter it.

"Only in this way will we continue to maintain a crop of dedicated investigators who can concentrate on their research and thereby continue to manufacture the new products so necessary for the practicing physician to meet the needs of his patients, so vital to cure disease, and ultimately, to eliminate and prevent it," he concluded.

Dr. Katz is in the department of cardiovascular research, Michael Reese Hospital, Chicago.

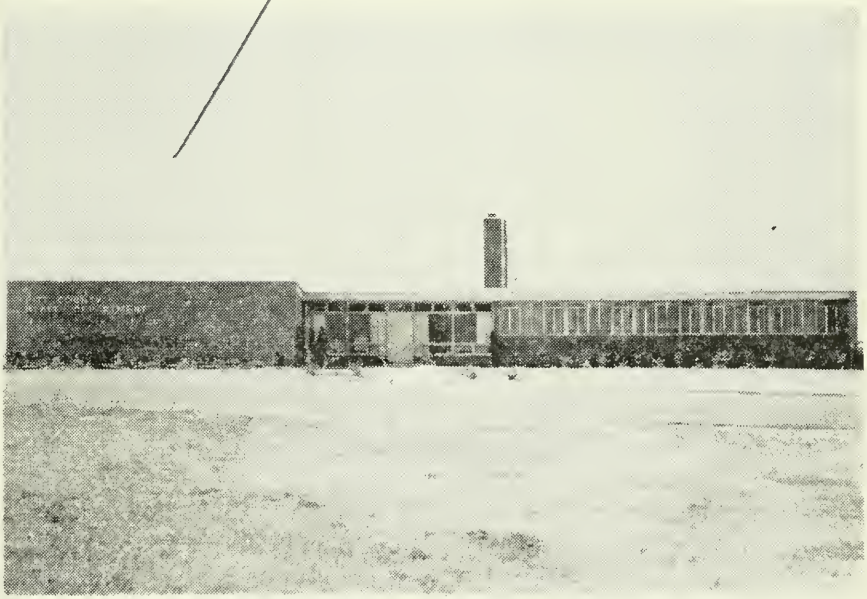
The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

This Bulletin will be sent free to any citizen of the State upon request

Published monthly at the office of the Secretary of the Board, Raleigh, N. C.
Entered as second-class matter at Postoffice at Raleigh, N. C. under Act of August 24, 1912

Vol. 71 | MAY, 1956 | No. 5



PITT COUNTY HEALTH DEPARTMENT
Greenville, N. C.

List of free health literature will be supplied by local Health Departments or on written request.

CONTENTS

NOTES AND COMMENT

BY THE EDITOR

Infant and Maternal Mortality

It is May again and time for us to review the results of our efforts to reduce infant and maternal mortality in North Carolina. On page 7 you will find information about live births, infant deaths and maternal deaths for each of the states of the Union for the year, 1954, and on page 8 you will find provisional figures for each county in the State for the year, 1955.

Although we can take pride in the fact that our **infant mortality** rates are much lower than they were twenty years ago, we can find little comfort in the progress which we have been making during the last few years. Our infant mortality rate for 1955 is 30.2 which is identically the same as our official rate for the year, 1954, when the rate for the Nation was 26.6. Eleven states had higher infant mortality rates than North Carolina. These are: Alabama, Arizona, California, Florida, Georgia, Kentucky, Mississippi, New

Mexico, South Carolina, Tennessee and Texas. Louisiana had a rate identical with that of North Carolina. North Carolina should be in the upper third group among the states instead of in the lowest third. There are 14 counties in North Carolina which have materially helped increase North Carolina's bad record for 1955, since their rates are well over 40 infant deaths per thousand live births. These are: Beaufort—44.8, Bladen—40.2, Cherokee—42.0, Columbus —40.7, Halifax—40.8, Hoke—40.8, Nash —47.9, New Hanover—41.8, Pamlico— 61.2, Pender—47.2, Perquimans—56.0, Robeson—46.1, Scotland—47.6, Wilson— 44.8. There are 34 counties with rates between 30 and 40. Thirty-one of these have rates higher than the State's average. There are 26 counties in the State which have rates less than 25—12 of these have rates less than 20. Cabarrus County with 1,485 live births reported—had an infant mortality rate of 18.2, and Orange County reported 958 live births with a rate of 17.7.

We have sufficient evidence in North Carolina that our infant mortality rates can be reduced. We urge our readers to study the information in the statistical tables. If your county has a good record, please compliment your health officer. If your county has a bad record, please confer with your health officer. Perhaps he has some explanation.

Maternal Mortality is now computed on the basis of the number of maternal deaths per 10,000 live births. In 1934 North Carolina's rate was 7.1. For the United States—the rate was 5.2. Only seven other States—Alabama, Arkansas, Georgia, Louisiana, Mississippi, New Mexico and South Carolina—had rates higher than North Carolina. One State, Vermont, had no maternal deaths reported for 1954 with 9,298 live births. In North Carolina—49 counties reported no maternal deaths in 1955. Of these, only Buncombe, Onslow and Pitt reported more than 2,000 live births. Buncombe and Onslow deserve special credit because this is the second consecutive year in which there has been no maternal death reported in either.

DONNELLY—

An important paper "Infant Mortality and Morbidity in Relation to Certain Maternal Factors," by Dr. James F. Donnelly, Obstetric Consultant of the North Carolina State Board of Health, was published in the April, 1956 issue of the North Carolina Medical Journal, and presented as the Oren Moore Memorial Lecture at the Southern Pediatric Seminar. Although much of the material in this paper is too technical for readers of The Health Bulletin, there are certain portions which should command the attention and consideration of all persons concerned with our infant and maternal mortality problem, as follows.

"Few people, even obstetricians and pediatricians, realize the magnitude of the problem of fetal mortality and morbidity. In North Carolina in 1953, there were a total of 4,800 obstetric deaths of which 112 were maternal. This figure was exceeded only by the number of deaths caused by all diseases of the circulatory system. It is higher than the number of deaths in the same year from malignancies and of all accidental deaths. If the 11,000 potential lives lost as the result of abortion were added to this total, the total obstetric deaths would rise to 16,000 for that year. . . .

"In summary this means that in 1953, in North Carolina, there were approximately 125,000 pregnancies, 16,000 of which terminated either in abortion, stillbirth, or death prior to the twenty-eighth day of life. An additional 5,000 or more infants were born crippled or malformed as a consequence of some obstetric complication. The total mortality and morbidity, therefore, represents 17 per cent of the total pregnancies which occurred in the state during this year. . . .

"The importance of adequate nutrition during pregnancy, and for that matter at all times, is accepted without question. On the other hand, with the exception of obvious acute deficiencies, nutritional factors are often difficult to relate satisfactorily to dis-

ease processes. One reason for this is the difficulty of obtaining reliable dietary data. Secondly, it is probable that the nutrition of the mother before conception is as important as diet during pregnancy. Finally, there are many aspects of nutrition which as yet are not understood. In general, mothers from the better social and economic classes have fewer abortions and lower perinatal mortality rates. It is true that these women also have many advantages other than nutritional over their sisters in the lower socio-economic groups. It is a reasonable assumption, however, that their superior nutrition is a major factor in this better health. . . .

"The causes of maternal mortality in North Carolina are toxemia, hemorrhage, embolism, infection, anesthesia, heart disease, and other medical complications, in that order. . . .

"Obstetric care certainly can be improved in a number of respects:

1. Better nutrition
2. Closer attention to the minor illnesses complicating pregnancy
3. Prevention of prematurity and better care of the prematurely born infant
4. Improved management of the bleeding complication
5. Better judgment in the type of delivery
6. More careful and less frequent use of analgesic and anesthetic agents.
7. Improved planning of pregnancies

The hypothesis that fetal mortality and morbidity is largely environmental and therefore preventable offers a new and dynamic approach to this problem."

SEEK CUT IN INFANT DEATHS*

New efforts to deal with infant mortality will be pressed on both Federal and local levels to reduce the "Preventable" loss of thousands of babies a year.

These plans were made known yesterday by Dr. Martha M. Eliot, chief of the United States Children's Bureau in Washington, and Dr. Leona C. Baumgartner, the City Commissioner of Health. Both spoke at the fifty-seventh annual meeting of the Council of the Association for the Aid to Crippled Children at 345 East Forty-sixth Street.

Dr. Eliot told the conference that 10,000 lives could be saved each year if the chances for survival were as good throughout the country as in the metropolitan areas. Much of the present loss of life could be prevented, she said, if present knowledge were more widely and intensively applied and medical, nursing and health services more readily available outside the cities.

To tackle the broad problem, Dr. Eliot reported, the Children's Bureau plans to establish a new committee. This committee will provide a forum for specialists from all branches of medicine concerned in the effort to reduce infant mortality. She said the aim would be coordination that results from informal exchanges of ideas and "joint thinking."

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*News Item, *New York Times*, May 1, 1956.

CARDIAC ARREST SURVIVAL CHANCES INCREASING

Patients with sudden unexplained heart stoppage during surgery have a better chance of recovery now than they did five years ago, due to increasing use of new emergency techniques.

Drs. Bernard D. Briggs, David B. Sheldon and Henry K. Beecher, Boston, said that cardiac arrest is the major single cause of operating room deaths. Its occurrence has increased, but the chances of survival have also increased, because of immediate diagnosis and treatment.

The rise in the number of cases is due to the current awareness of the problem which leads to more frequent diagnosis, and to the large number of operations performed on aged or very ill patients, they said in the Journal of the American Medical Association.

Treatment of cardiac arrest during surgery consists of prompt opening of the chest wall followed by hand massage of the heart, artificial respiration

with oxygen, and use of drugs, they said.

The physicians made a study of all cardiac arrest cases at Massachusetts General Hospital, Boston, from 1925 to 1954. There was a steady decrease in the rate of cardiac arrest for the first 20 years of the period, followed by a marked increase in the last decade, particularly in the last five years, they said.

The decrease from 1925 to 1944 appeared to be due to improved preoperative preparation of the patient and improved selection and administration of anesthesia. The increase in later years was the "very result" of these same advances in medical care, the doctors said, since they allowed aged and poor risk patients to come to surgery who in earlier years would have been considered unsuitable. It is in this group that the greater number of arrests have occurred.

The study of 189,815 surgical procedures showed 35 cases of cardiac arrest from 1925 to 1944 and 100 cases from 1945 to 1954. All of the early cases and half of the 1945-1954 cases resulted in death. Thirty-seven patients between 1945 and 1954 survived, while there were 13 other cases in which heart activity was restored for periods of four hours to three weeks.

The survival rate has steadily improved. For the decade 1945-1954 it was 37 per cent, while it was 50 per cent for the last five years of that period.

Factors which appeared to contribute to cardiac arrest included increased age, physical status before surgery, and the existence of heart disease. There was an increase in cardiac arrest for each decade of age beyond the second. For age 20 to 30 there was one stoppage for every 4,358 operations, while in patients 80 years and over the rate was one for every 219 operations, the doctors said.

The incidence of cardiac arrest in patients in poor physical condition was 30 times greater than in those in good condition. Heart disease, present in 60 patients whose hearts stopped, was five times greater in the cardiac arrest group than in the general surgical population of the hospital.

MYOCARDIAL INFARCTION RISES AMONG WOMEN

The rate of myocardial infarction, a type of heart disorder, rose sharply among women about 1940, according to a study of autopsies performed over a 45-year period in a large Midwestern hospital.

From 1910 to 1939 twice as many men as women had myocardial infarction, but from 1940 to 1954 the number was almost the same—1.1 men to 1 woman, the autopsy reports of Barnes General Hospital, St. Louis, showed.

If the ratio has actually changed in the general population since 1940 as it has in the Barnes Hospital autopsy series, it is "of profound significance," Drs. Kyu Taik Lee and Wilbur A. Thomas said in Archives of Internal Medicine, published by the American Medical Association.

It has been widely believed that myocardial infarction, a condition in which heart muscle cells become deadened, occurs much more frequently among men than women. The St. Louis figures contrast sharply with ratios such as 3 to 1 or 7 to 1 reported in other studies based on diagnostic information, they said. Even in Barnes General Hospital, the ratio was 2.4 men to 1 woman among patients diagnosed on admission to the hospital.

Drs. Lee and Thomas analyzed reports of autopsies performed on 8,183 adults in Barnes General Hospital during the years 1910 through 1954. Acute myocardial infarction was a principal diagnosis in 500 patients, of whom 334 (66.8 per cent) were men and 166 (33.2 per cent) were women.

The incidence of myocardial infarction increased "tremendously" in all age groups in the series over the 45-year period, with 20 times more cases in the decade 1945-1954 than in 1910-1919.

This increase may be partly explained by the recent trend toward more

frequent hospitalization of patients with suspected myocardial infarction and by the increasing age of the general population, they said. It may also reflect in part an actual increase in the incidence of the disease in the population and may be related to some changing factors in American civilization, they said.

They noted that the peak of incidence of myocardial infarction occurred later in women than in men. This may be related to the theory that female hormones inhibit development of arteriosclerosis, since the hormones decrease progressively with age. The rate of myocardial infarction in women rose steadily with age, while in men it became stationary from 60 to 80 years and then decreased.

The study also showed that the incidence was proportionately higher in white persons than in Negroes, the socio-economic status of the patients apparently was not an important factor, and diabetes mellitus was much more common among patients with acute myocardial infarction, especially women, than in the general autopsy population.

The research was supported in part by a grant from the National Heart Institute, National Institutes of Health, Bethesda, Md.

PSYCHIATRIST ISSUES HYPNOTISM WARNING

Hypnotism can be a useful tool in the hands of a qualified specialist, but it can be "downright dangerous" when used by an irresponsible person, a New York psychiatrist said recently.

Writing in Today's Health, published by the American Medical Association, Dr. James A. Brussel, Willard, N. Y., warned against the indiscriminate use of hypnotism by lay persons to "cure" symptoms—both physical and mental—and to develop delusions such as "mastery of the mind."

He said three principles regarding hypnotism to which medical science subscribes are: 1. Where hypnotism removes symptoms, an illness may be obscured and prolonged, since causes are not treated. 2. Where hypnotism treats emotional symptoms instead of causes, more serious personality defects may occur. 3. Where hypnotism evokes delusions, habits of thought as harmful as drug addiction may be formed.

Hypnotism can be useful, especially in psychotherapy, by relieving certain symptoms and manifestations. However, these very gains are exploited by untrained and irresponsible persons, Dr. Brussel said.

"By virtue of the sudden, immediate and seemingly successful results achieved through hypnosis, the quack flourishes and creates damage that is at times appalling," he said.

Hypnotism by trained specialists in psychotherapy may be used to remove some psychological or physical condition which interferes with the beginning of satisfactory therapy. Its use, though, must be limited to certain neuroses, he said.

Hypnotism is not a cure in the strict sense of the word, and its results are not always permanent. It can be used only on persons who are willing to cooperate and who have, at least, an unconscious desire to secure relief, he said.

Since there are not psychiatrists enough for all, quacks have enjoyed a "Roman holiday." In the process, the quack "can do irreparable harm by his ability to produce hypnotic effects which he doesn't understand and doesn't know how to use," Dr. Brussel said.

Only public awareness can halt the growing menace of hypnotic quacks, Dr. Brussel said. "As long as people are willing to gamble their health with untutored, inexperienced practitioners, the menace will continue to grow," he concluded.

Dr. Brussel, a certified psychiatrist, is a member of the American Psychiatric Association.

RESIDENT LIVE BIRTHS, INFANT DEATHS, AND MATERNAL DEATHS WITH RATES: UNITED STATES AND EACH STATE, 1954

(Births based on a 50 per cent sample. Infant mortality rates per 1,000 live births. Maternal mortality rates per 10,000 live births.)

AREA	Live Births		Infant Deaths[1]		Maternal Deaths[2]	
	Number	Rate	Number	Rate	Number	Rate
United States	4,017,362	25.3	106,791	26.6	2,105	5.2
Alabama	82,458	27.7	2,764	33.5	103	12.5
Arizona	26,820	29.5	1,068	39.8	11	4.1
Arkansas	43,428	24.4	1,153	26.5	35	8.1
California	306,290	25.2	7,250	23.7	106	3.5
Colorado	38,918	26.8	1,213	31.2	16	4.1
Connecticut	50,396	23.2	1,130	22.4	14	2.8
Delaware	9,694	26.6	285	29.4	2	2.1
District of Columbia	21,012	25.4	609	29.0	11	5.2
Florida	84,934	26.4	2,642	31.1	52	6.1
Georgia	100,420	28.6	3,196	31.8	104	10.4
Idaho	17,174	28.9	407	23.7	5	2.9
Illinois	217,420	23.8	5,432	25.0	76	3.5
Indiana	109,004	25.8	2,790	25.6	43	3.9
Iowa	63,198	23.7	1,347	21.3	28	4.4
Kansas	53,478	27.0	1,318	24.6	29	5.4
Kentucky	75,116	25.8	2,281	30.4	52	6.9
Louisiana	86,446	30.2	2,614	30.2	68	7.9
Maine	22,612	25.8	564	24.9	10	4.4
Maryland	66,378	26.4	1,804	27.2	34	5.1
Massachusetts	107,770	22.1	2,494	23.1	34	3.2
Michigan	192,332	27.4	4,792	24.9	91	4.7
Minnesota	80,976	25.9	1,768	21.8	30	3.7
Mississippi	64,672	30.8	2,369	36.6	107	16.5
Missouri	93,608	23.2	2,521	26.9	49	5.2
Montana	17,318	28.2	398	23.0	5	2.9
Nebraska	33,852	24.9	782	23.1	12	3.5
Nevada	5,846	29.1	147	25.1	2	3.4
New Hampshire	12,254	22.4	280	22.8	7	5.7
New Jersey	118,398	22.6	2,778	23.5	51	4.3
New Mexico	25,638	34.2	1,090	42.5	26	10.1
New York	335,510	21.3	7,881	23.5	141	4.2
North Carolina	114,846	27.8	3,465	30.2	82	7.1
North Dakota	17,410	27.5	425	24.4	6	3.4
Ohio	222,654	25.6	5,575	25.0	92	4.1
Oklahoma	51,230	24.0	1,397	27.3	33	6.4
Oregon	38,658	23.6	869	22.5	7	1.8
Pennsylvania	244,682	22.3	6,083	24.9	104	4.3
Rhode Island	18,046	22.5	416	23.1	11	6.1
South Carolina	65,140	29.6	2,142	32.9	69	10.6
South Dakota	18,166	27.4	462	25.4	6	3.3
Tennessee	85,834	25.7	2,598	30.3	53	6.2
Texas	239,220	29.0	7,436	31.1	136	5.7
Utah	23,500	31.0	489	20.8	6	2.6
Vermont	9,298	24.8	233	25.1	—	0
Virginia	95,210	28.2	2,920	30.7	59	6.2
Washington	62,744	25.6	1,515	24.1	27	4.3
West Virginia	46,544	23.4	1,317	28.3	24	5.2
Wisconsin	91,872	25.4	2,012	21.9	34	3.7
Wyoming	8,938	31.0	270	30.2	2	2.2

[1]Exclusive of fetal deaths (stillbirths)

[2]Deaths from deliveries and complications of pregnancy, childbirth, and the puerperium.

Source: National Office of Vital Statistics.

PHSS: March 30, 1956

RESIDENT LIVE BIRTHS, INFANT DEATHS, AND MATERNAL DEATHS WITH RATES*: NORTH CAROLINA AND EACH COUNTY, 1955**

Area	Live Births	Infant Deaths		Maternal Deaths	
		No.	Rate	No.	Rate
North Carolina	114,332	3,452	30.2	98	8.6
Alamance	1,825	47	25.8	2	11.0
Alexander	310	9	29.0	—	0
Alleghany	114	2	17.5	—	0
Anson	672	23	34.2	—	0
Ashe	496	12	24.2	—	0
Avery	286	8	28.0	—	0
Beaufort	1,049	47	44.8	1	9.5
Bertie	802	27	33.7	1	12.5
Bladen	900	36	40.0	—	0
Brunswick	542	16	29.5	1	18.5
Buncombe	2,616	77	29.4	—	0
Burke	1,003	16	16.0	1	10.0
Cabarrus	1,485	27	18.2	2	13.5
Caldwell	1,238	31	25.0	2	16.2
Camden	157	3	19.1	—	0
Carteret	707	17	24.0	—	0
Caswell	497	9	18.1	1	20.1
Catawba	1,720	39	22.7	1	5.8
Chatham	596	21	35.2	—	0
Cherokee	357	15	42.0	—	0
Chowan	421	16	38.0	1	23.8
Clay	99	3	30.3	—	0
Cleveland	1,648	53	32.2	2	12.1
Columbus	1,400	57	40.7	4	28.6
Craven	2,027	54	26.6	2	9.9
Cumberland	5,199	134	25.8	3	5.8
Currituck	164	3	18.3	1	61.0
Dare	107	3	28.0	—	0
Davidson	1,647	44	26.7	3	18.2
Davie	369	6	16.3	—	0
Duplin	1,146	38	33.2	—	0
Durham	2,539	65	25.6	1	3.9
Edgecombe	1,738	64	36.8	3	17.3
Forsyth	4,113	124	30.1	2	4.9
Franklin	749	26	34.7	—	0
Gaston	3,090	92	29.8	3	9.7
Gates	255	8	31.4	—	0
Graham	148	5	33.8	—	0
Granville	769	21	27.3	1	13.0
Greene	499	14	28.1	—	0
Guilford	5,378	121	22.5	2	3.7
Halifax	1,763	72	40.8	2	11.3
Harnett	1,229	34	27.7	2	16.3
Haywood	851	17	20.0	1	11.8
Henderson	733	25	34.1	—	0
Hertford	634	24	37.9	1	15.8
Hoke	539	22	40.8	—	0
Hyde	147	2	13.6	1	68.0
Iredell	1,464	44	30.1	1	6.8
Jackson	372	11	29.6	1	26.9
Johnston	1,443	43	29.8	1	6.9
Jones	325	12	36.9	3	92.3
Lee	731	25	34.2	1	13.7
Lenoir	1,657	55	33.2	1	6.0
Lincoln	616	14	22.7	—	0
McDowell	684	17	24.9	—	0
Macon	345	9	26.1	1	29.0
Madison	350	13	37.1	—	0
Martin	879	31	35.3	3	34.1
Mecklenburg	6,400	188	29.4	4	6.3
Mitchell	322	8	24.8	—	0
Montgomery	495	15	30.3	—	0
Moore	1,017	27	26.5	—	0
Nash	1,731	83	47.9	2	11.6
New Hanover	1,769	74	41.8	3	17.0
Northampton	747	26	34.8	—	0
Onslow	3,173	69	21.7	—	0
Orange	958	17	17.7	—	0
Pamlico	245	15	61.2	—	0
Pasquotank	777	23	29.6	1	12.9
Pender	508	24	47.2	—	0
Perquimans	268	15	56.0	—	0
Person	690	22	31.9	—	0
Pitt	2,036	67	32.9	—	0
Polk	252	6	23.8	—	0
Randolph	1,326	29	21.9	2	15.1
Richmond	1,031	31	30.1	—	0
Robeson	3,016	139	46.1	4	13.3
Rockingham	1,631	50	30.7	2	12.3
Rowan	1,762	39	22.1	2	11.4
Rutherford	1,027	21	20.4	—	0
Sampson	1,325	48	36.2	1	7.5
Scotland	756	36	47.6	—	0
Stanly	858	26	30.3	—	0
Stokes	517	7	13.5	—	0
Surry	1,150	24	20.9	—	0
Swain	236	8	33.9	—	0
Transylvania	352	9	25.6	—	0
Tyrrell	116	4	34.5	—	0
Union	1,024	34	33.2	2	19.5
Vance	898	24	26.7	3	33.4
Wake	3,636	125	34.4	3	8.3
Warren	580	16	27.6	2	34.5
Washington	403	15	37.2	—	0
Watauga	384	14	36.5	—	0
Wayne	1,725	50	29.0	2	11.6
Wilkes	1,055	35	33.2	—	0
Wilson	1,631	73	44.8	5	30.7
Yadkin	523	8	15.3	1	19.1
Yancey	343	5	14.6	—	0

PHSS: March 30, 1956

*Infant deaths per 1,000 live births; Maternal deaths per 10,000 live births

**Data are provisional and include receipts through January 1956 for 1955 occurrences

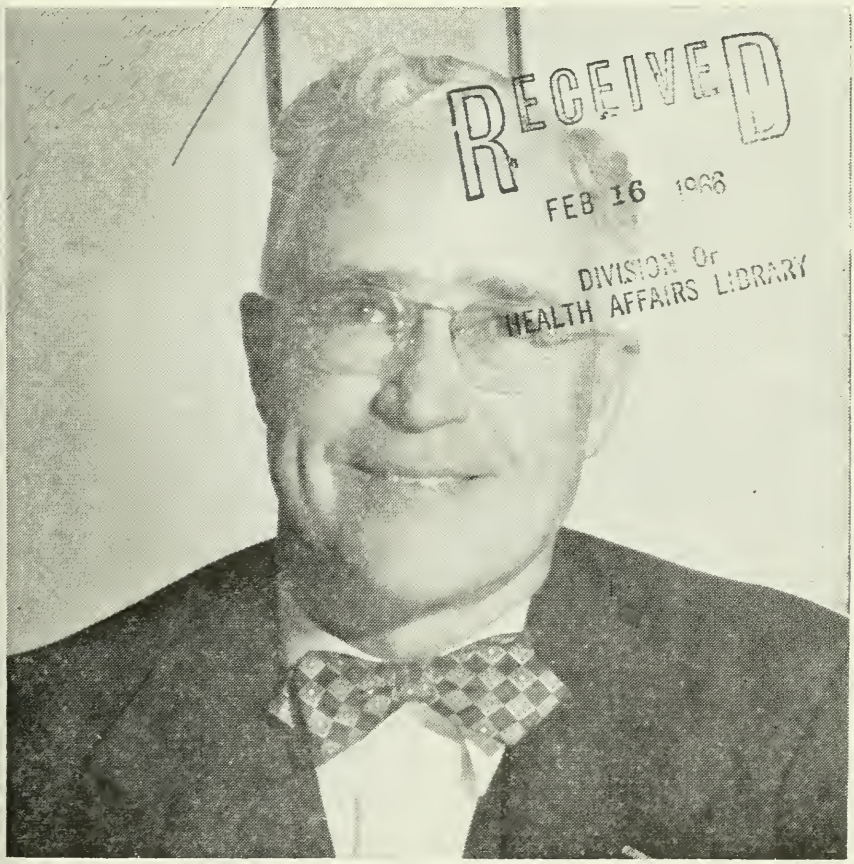
The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

This Bulletin will be sent free to any citizen of the State upon request

Published monthly at the office of the Secretary of the Board, Raleigh, N. C.
Entered as second-class matter at Postoffice at Raleigh, N. C. under Act of August 24, 1912

Vol. 71 JUNE, 1956 No. 6



J. W. R. NORTON, M.D.

CONTENTS

STATE AND LOCAL HEALTH DEPARTMENT SERVICES IN NORTH CAROLINA*

BY J. W. R. NORTON, M.D., M.P.H., F.A.C.P.M.**
Raleigh

Since so many know only part of the services of the state and local health departments it seems appropriate to outline these so that we may have more informed medical guidance in future program planning.

The state and local health departments in North Carolina have enjoyed a growth in quality and quantity comparable to that of general hospitals and private practice during the same period. This medical society was in 1877 and for two years the State Board of Health with an annual appropriation of $100.00. In 1879 a Board of nine, similar to that of today, was set up. It was twenty-nine years later that a full-time physician was employed. The fumigation, quarantine and the regulation-enforcement emphasis era was as unsatisfactory in prevention as the

*Presented during Conjoint Session—Medical Society of North Carolina and State Board of Health, Pinehurst, 2 May, 1956.

**Secretary-Treasurer of the State Board of Health and State Health Officer

similar groping progress in private practice of the same period was in treatment.

The nine-member State Board of Health (five appointed by the Governor and four by this Medical Society—six of these physicians) with staggered four-year terms, formulate policies and prescribe regulations and procedures that are carried out administratively through the 300 central staff and 1200 local department employees.

The central staff organization is set up under the State Health Officer and Assistant State Health Officer with six Division Directors and about thirty section chiefs. The bare listing of titles suggests the program and services.

1. Central Administration includes budgets, personnel, files, printing, mailing and public relations.

2. The Epidemiology Division embraces sections as follows: acute communicable diseases, public health statistics, veneral diseases, tuberculosis, occupational health, home and farm accident prevention, and veterinary public health. Epidemiological consultations are increasing in frequency and usefulness.

3. The Laboratory Division protects the public health through services to private physicians, hospitals and health departments, through biologics, microscopy, cultures, serology, water analyses, chemistry, and approval of laboratories. The growing library should be of increasing helpfulness to health staffs and private physicians.

4. The local Health Division has sections as follows: administrative, public health nursing, mental health, health education, and (jointly with the Education Department) school health.

5. The Oral Hygiene Division provides education through visual media, lectures and literature and also services in consultation, correction and prevention.

6. The Personal Health Division includes the maternal and child health, crippled children, nutrition, cancer, and heart disease sections.

7. The Sanitary Engineering Division includes four sections: sanitation, (environmental, public eating places, milk, and shellfish), engineering, insect and rodent control, and stream sanitation. Radio-active wastes, air and stream sanitation and housing are of increasing importance.

Local health departments began in 1911, under the leadership of North Carolina's first full-time health officer, Dr. Watson S. Rankin, and reached the entire State in July, 1949. From the beginning there has been local autonomy, flexibility and adaptability and medical guidance. Strong local boards actively supported by the county medical society and public have assured progressively better health services.

From the minimum of a health officer, public health nurse, sanitarian and clerk (each full-time) and a ten-week oral hygiene program to a large department such as Mecklenburg's (with about 150 workers, including a full-time dentist) the services are provided mainly on the economical generalized basis.

Local health department services may be briefly described under seven headings:

1. Sanitation—The utmost in tact and leadership are required to assure clean drinking water and milk and safe disposal of human wastes, safe food processing and vending establishments and healthful schools and camps. More should be done to protect our streams and the air from contamination and to promote better housing for all, including migratory farm laborers. Certain insects and rodents have depleted food, clothing and shelter and spread epidemics and the health department team wages war on those harmful to us. The approach is through education and helpful leadership rather than authoritarian.

2. Good maternal-child hygiene begins with planned parenthood and extends through prenatal, natal (including midwife supervision), post-natal, infant, pre-school and school periods. Nutrition and oral hygiene services are essential. Crippled childrens' services and rehabilitation restore many to useful, happy lives. In this area we have reached the best development as a co-

operating team of private physicians, hospitals and the public health staff and always including research and teaching. Research indicates that a constructive maternal-child health program will definitely reduce the incidence of mental defectives, juvenile delinquency and possibly some of the later neuroses, psychoses and degenerative diseases. This is not too far back to go in planning a preventive program in gerontology.

3. Communicable disease control is dependent on sanitation activities, immunizations wherever available, and as in all other health programs the cooperation between the public health team and the private practitioner—hospital team is essential. Progress against the diarrheas, dysenteries, smallpox, typhoid, tuberculosis, diphtheria, and malaria shows what this coordinated effort can accomplish. Health workers have had an important role in improving the treatment methods in tuberculosis and venereal diseases and as a result many of these can now be better treated in doctors' offices.

4. Laboratory services of the local health department assist in the clinic programs and also aid the private physician. Prompt diagnostic aid in commoner communicable diseases and in milk examinations are examples.

5. Health education is the job of the entire staff under the stimulation and leadership of those with special training in this field. All individual, group, and mass audio-visual and other media are useful. The nurse or sanitarian can give detailed instruction to supplement the brief visits with, and to the family physician. The health department can inform the public regarding quackery and faddists and encourage early supervision by the competent and ethical medical practitioner.

6. Public health statistics constitute the inventory, the income and the outgo, of human resources. They may explain losses and point the way to gains. They assist the private practitioner by alerting him in diagnoses and point the way for teamwork in recognizing and combatting enemies of health and life. Sound evaluation and program planning are impossible without accurate health bookkeeping.

7. Chronic diseases, mental disorders and accidents can be attacked jointly by those in research and teaching, health departments and private practitioners by the same methods proved useful before against former common communicable diseases. Diseases of the heart and blood vessels, cancer, mental disorders and accidents, are increasing in our aging and hurried population. We have much to learn regarding the etiology of mental disorders and the chronic degenerative diseases. We have reason to believe early case-finding and medical guidance with nurse follow-up can be useful in most cases. What part is played by nutrition, endocrinology or viruses we hope to learn more about soon. Health statistics are useful in identifying problems in these areas and health departments can inform the public on the necessity to cooperate in prevention and treatment.

Services of local and state health departments are so intertwined that it may become difficult to distinguish them. Wherever direct services or specialist consultation are not feasible through the local health department, the state provides them.

Services of local health departments are recognized as the most important, but any large business requires a reasonable overhead guiding and cohesive force. Hence central administration public health statistics and laboratory services. Most local department personnel serve on a generalized basis and, therefore, the state provides a few state or district specialist consultants in such fields as sanitary engineering, nutrition, laboratory activities, public health nursing and epidemiology. Direct services to local health departments and private physicians are provided in maternal and child health, crippled children, laboratory examinations and supplying of biological products, oral hygiene, tuberculosis and venereal disease case-finding, accident (home and farm) prevention, and health education. Private physicians

are also served through laboratory aids, epidemiological consultation and statistical services and study committees of this Society through statistical, epidemiological, and other services. Many consultative health services are provided other state agencies and institutions such as sanitary engineering, nutrition and food services with the Medical Care Commission, Prison Department, Tuberculosis and Mental Hospitals, and Training Schools. Consultation is provided municipalities regarding design and construction of water treatment and sewage disposal plants. Materials used in the manufacture of bedding are inspected. Insect and rodent control assists municipalities and industries. Occupational health activities protect workers and promote industrial development. Veterinary public health services (working closely with the Agriculture Department) help control diseases which primarily attack animals but secondarily man, and stimulate the livestock industry. Oral hygiene has far-reaching effects in maternal and child health, reduces absenteeism and probably reduces the degenerative diseases of our aging population. Mental health services are being developed along lines similar to our tuberculosis control work; namely, some central or district assistance in case-finding and consultation and local health department instructional guidance and follow-up. Public health has played a key part in the only considerable reduction of mental disorders, in paresis and pellagra.

These many services provided by the state and local health departments are helpful to all our four and a half million citizens and enhance the attractiveness of private practice throughout our state. By preventing disability and postponing death the standard of living is raised. The private physician or dentist can be called earlier when illness or injury does occur, if the family has not previously been handicapped by preventable disabilities. Agriculture and industry are stimulated and tourists are attracted to come and to return. The people are becoming better informed on what they may reasonably expect in prevention, diagnosis, treatment and rehabilitation and if any area is neglected the public relations of every physician and of organized medicine suffer accordingly.

The cost of these public health services is amazingly low. From a total expenditure for fiscal 1955 of $8,007,917.44, or less than $2.00 per capita, seventy per cent ($5,623,263.32) was used by local health departments. Much of the remainder was invested in direct services or in consultation services to local health departments, to other agencies and institutions (state and local) and to private physicians and hospitals. For clinic and corrective services private physicians were paid $240,202.78, and hospitals received $548,253.42. Yet the per capital cost of local health services was $1.385 with county-city appropriations providing 75%, and for state health department services, the cost was $ .587. The continuation of this ethical teamwork of a sound and balanced preventive service, with emphasis on economical decentralization, joined with progressive and unselfish private practice offers our best promise of continuing our free enterprise system.

NOTES AND COMMENT

BY THE EDITOR

SUGGEST CENTRAL LEUKEMIA INFORMATION AGENCY

A group of California researchers recently suggested that a central agency be established to collect information on children born of leukemic mothers.

Such an agency would offer a means of studying the causes of leukemia, a

serious blood disease, on a wide scale, they said in the Journal of the American Medical Association.

The cause of the disease is unknown, although the possibility that it is virus-caused has been considered. Heredity also may play a role. Children born of leukemic mothers would be the best source of information on these possibilities, they said.

It is necessary to organize one agency to collect all this material, since it is highly improbable that any individual or institution would ever have the opportunity to study a sufficiently large number of similar cases to warrant statistical treatment, they said.

There have been at least 50 reported instances of leukemic mothers giving birth to living infants. None of the babies showed evidence of leukemia, according to the reports. There were no detailed studies of mother and child in the immediate postdelivery stage to determine similarities and differences in the blood. Moreover, follow-up studies of such offspring have been "sadly neglected," they said.

The authors recommended that records include information on the leukemic mothers' illness, hereditary background, conditions at time of delivery, and extensive blood studies of both mother and child in the days immediately following delivery. In addition, the child should be followed thrice yearly until age five and once a year thereafter.

The suggestion was made by Dr. Howard R. Bierman, Dr. Keith Kelly and Miss Fauno L. Cordes of the Hospital for Tumors and Allied Diseases and the division of research of the City of Hope Medical Center, and Dr. Paul M. Aggeler and Dr. Hulda Thelander of th Children's Hospital, San Francisco. The study was supported in part by the Leukemia Research Foundation of Los Angeles, Inc.

A.M.A. TO CLOSE PRINTING PLANT

June 30 will mark the end of an era in American Medical Association history. That will be the date of the last A.M.A. Journal to be printed in the association's own printing plant.

Beginning July 1, the Journal will be printed by the McCall Corporation, Dayton, Ohio, which has printed Today's Health, the A.M.A.'s popular health magazine, since 1950. The announcement was made in an editorial in the May 19 Journal.

In its nearly 70 years of operation, the shop printed enough Journals to circle the equator twice if they were laid end-to-end.

The A.M.A. board of trustees decided to close the shop because the growth of the association's other activities and the rapid improvement of printing techniques have caused grave problems, the editorial said.

The headquarters building is no longer big enough to house both the printing plant and the association's many other activities. In fact, space is at such a premium that barely a month's supply of paper for the journals can be kept on hand. The 71,357 square feet in the basement and first three floors of the building now occupied by the print shop will be taken over by other departments.

The printing equipment is out of date, with some presses more than 40 years old and needing replacing. The 96-page two-color rotary press on which the Journal is printed each week is 24 years old.

If the association continued printing, modernization and expansion would be necessary, the editorial said. The problem could have been handled in any one of several other ways, including the purchasing of new print shop equipment and expanding the present building, constructing an entirely new building, or buying a print shop already in operation. Any of these would have cost several million dollars. The board felt that it would be more economical in the long run to contract with an outside firm for the printing.

Printing and mailing of the Journal alone cost $2,160,000 in 1955, and of nine specialty journals $585,000—but this volume is not enough to keep new presses, costing hundreds of thousands

of dollars, working economically and to capacity. Not even the shop's other work, including reprinting journal articles and printing pamphlets, brochures and booklets for various A.M.A. councils and departments, would do it.

The weekly press run of the Journal now averages about 175,000 issues, of which more than 160,000 are mailed to A.M.A. members and Journal subscribers. Last year the Journal press runs consumed approximately 5,000 tons of paper, costing over $900,000, while the specialty journals used nearly 300 tons, costing in excess of $60,000. It took 220 employees to print, bind and mail the Journal.

The journals will continue to be edited in the Chicago offices, but a production coordination office will be set up to work with the outside printers.

T. V. McDavitt, director of industrial and personnel relations, said that most publishers have found that it is more economical and efficient to "farm out" printing to a company which can keep its expensive high-speed multi-colored presses operating at full capacity.

The editorial said, "The closing of the print shop can be considered a sign of progress and a milestone in the history of the association. Not only will future issues of the journals be published in a print shop with adequate color presses and modern equipment, but the association's other important activities will now have room for necessary expansion."

FURTHER REASON FOR THOROUGH COOKING OF PORK GIVEN

Findings of a recent study by two Yale University investigators have given further reason for making sure that pork is well cooked.

The study gave evidence that another disease, besides trichinosis, may be acquired by eating undercooked pork. The disease, toxoplasmosis, resembles pneumonia in its symptoms.

It was studied by David Weinman, M.D., and Anne H. Chandler, M.T., New Haven, Conn. Their report appears in the Journal of the American Medical Association.

The researchers did not prove that eating undercooked pork is the only way of transmitting the Toxoplasma, but they felt that they had accumulated "very suggestive" evidence incriminating it as one transmitting agent.

The disease, caused by the protozoan Toxoplasma, is now "extremely common," they said, although 10 years ago it was considered to be rare. In fact, in some parts of the country from 30 to 70 per cent of the population in the 40 to 60 age group is infected, they said. Normally the disease is not severe and only acute cases receive much attention.

The method of its transmission is almost completely unknown. Toxoplasmosis is widespread among animals, especially pigs and rodents. It has been assumed that the infection is conveyed in some unidentified manner from animals to man—perhaps by an insect, by handling infected animals or carcasses, or by eating contaminated food.

They found that: (1) pigs can be infected with toxoplasmosis by eating infected rodents or pork scraps; (2) the rhesus monkey—the "conventional substitute" for man in experiments—can acquire the disease by eating infected pork; (3) persons who have trichinosis, which can be acquired only through eating undercooked pork, have a proportionately higher rate of toxoplasmosis than do normal persons.

Toxoplasmosis can occur in persons who do not have trichinosis. This means that, unlike trichinosis which can be transmitted only by pork, there is more than one source of toxoplasmosis, they said. Just what the other sources might be remains to be discovered.

In addition to demonstrating that pigs and rhesus monkeys can be infected, the investigators found through various tests that the Toxoplasma organism in pork can survive the usual temperatures and periods of pork storage. It survives in a cyst-like mass called a pseudocyst, which protects it not only from freezing, but also from

the effect of gastric juices. This means that the organism might enter the body through the walls of the stomach, as well as through the walls of the mouth or the respiratory tract. Cooking will destroy the cyst and the Toxoplasma, they said.

They also found several factors which would aid in the spread of the disease and make it difficult to identify. Pigs, once infected, remained so for at least a year, while rats remained infected for at least seven months. The long persistence of an organism in the tissues helps its spread, especially in situations where the organism has several carriers, they said.

Toxoplasmosis has no fixed incubation period, which makes it impossible to trace a mass outbreak to the consumption of an article of food at a common meal. Furthermore, unlike the Trichinella worm, the Toxoplasma is not readily identified in sections of infected pork because of its much smaller size and more haphazard distribution in the tissues.

A.M.A. PRESIDENT CALLS PRESS "TOP-GRADE"

Dr. Elmer Hess, retiring president of the American Medical Association, called the American press "alert, responsible and top-grade."

He said recently in the Journal of the A.M.A., that he found newspaper reporters courteous, accurate and fair during his years as A.M.A. president-elect and president. In nearly every case the stories they wrote were accurate, objective, and interesting, he said.

In his President's Page message to A.M.A. members, Dr. Hess asked physicians to cooperate with local newspapers and radio and television stations in providing necessary medical facts and opinions. He urged doctors not to ignore their requests or to be too busy to talk with them.

"They are your friends, and if you are frank and honest with them, they in turn will be the same with you," he said. "Let us all remember that the press is the greatest education unit today."

He concluded with the hope that the American press may continue to be independent.

SOCIAL WORKERS ASSUME ROLE IN PRIVATE MEDICAL OFFICE

The medical social worker has moved from the hospital and outpatient clinic to the private physician's office.

Dr. H. M. Margolis and Harold Mendelsohn, M.S.W., Pittsburgh, explained in the Journal of the American Medical Association the role a social worker can play in a private practice.

The influence of environmental and personal factors upon health is generally recognized today, they said. Physicians often can help the patient solve some of his emotional problems, but if they are too involved or time-consuming, a social worker may be invaluable, the authors said.

Medical social workers have long worked in hospitals and outpatient clinics, usually with indigent patients, but poverty should not be the criterion for need of social work help, they said. The private patient, as well as the indigent, has fears of disease or disability, worries about family adjustment, and dissatisfaction with themselves, their neighbors, or their work—all of which can adversely affect health or recovery.

Specially trained to deal with the social stress factors in a patient's life, the social worker can help the patient to understand better the effects of his reactions to many life experiences and pressures in his society.

Such aid can be extended only to selected patients—those who have illness directly connected with stress and those who are willing to undertake such treatment. Even with them, the social worker must overcome the patients' resistance to further treatment and their fear that casework implies mental illness or the inability to handle their own problems.

Some patients who have been helped by medical social caseworkers feel that the physician has made it possible for them to work out their problems, the authors said.

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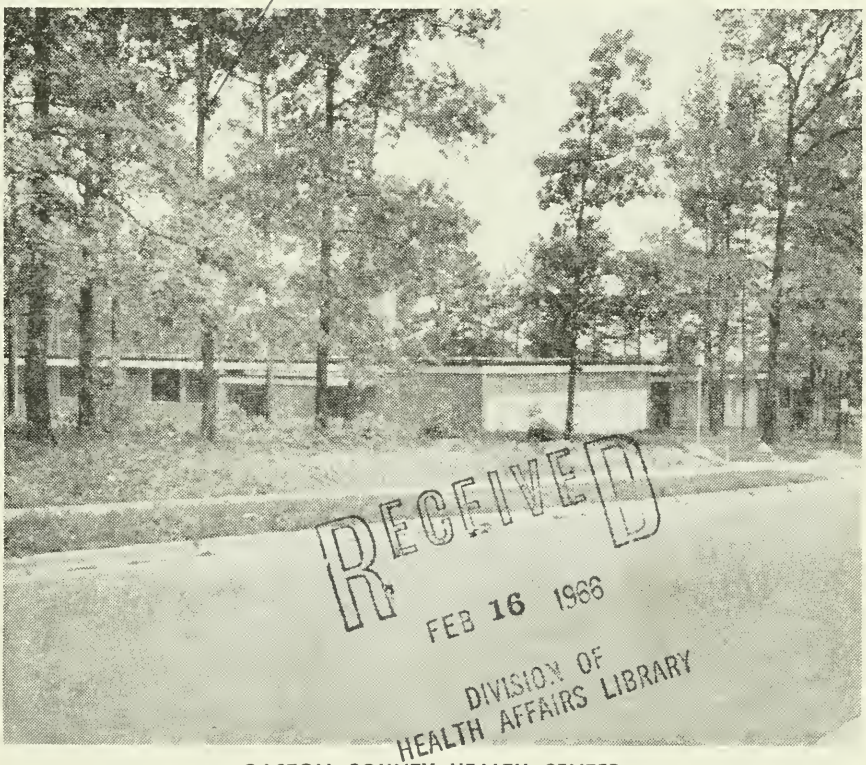
Vol. 71 JULY, 1956 No. 7



GASTON COUNTY HEALTH CENTER
GASTONIA, NORTH CAROLINA

CONTENTS

THE CHANGING HEALTH PICTURE IN NORTH CAROLINA

By WILLIAM H. RICHARDSON
North Carolina State Board of Health

In 1916, the first year for which complete authentic figures are available, five communicable diseases were responsible for 5,104 out of a total of 31,389 deaths from all causes in North Carolina. Tuberculosis, which was then the Number One Killer in this State, claimed 3,577 lives; typhoid fever, 702; diptheria, 410; whooping cough, 402; and smallpox, 13. In 1955, smallpox had faded entirely from the picture, and the other four caused only 294 deaths, with tuberculosis still leading in the communicable disease group, although it had dropped entirely out of the top ten leading causes of death.

Out of 31,389 deaths from all causes in 1916, 5,337, or 17 per cent, resulted from three leading degenerative diseases, namely: diseases of the heart, apoplexy and cancer. These same diseases last year were responsible for 19,490, or 60 per cent, of the total 32,215 deaths from all causes in this State.

In overcoming degenerative diseases,

we have, up to this time, made little progress. These present new frontiers in private practice and in public health. In one of his reports to a Conjoint Session of the State Medical Society and the Board of Health, Dr. J. W. R. Norton, State Health Officer, made this statement: "I again express the belief that we can work out a program in the control of health problems in the non-communicable field, that will be ethical, acceptable and effective, encroaching upon the prerogatives of none. All public health programs directed against these problems will have but one objective, that is, to promote early private medical care for the patient, and to insure the success of that care, by providing to every physician, where needed, the services of trained personnel, in case-finding, follow-up, and rehabilitation."

War on Tuberculosis

It is very encouraging indeed, when we consider the fact that deaths from tuberculosis dropped from 3,577, in 1916, to 258 last year. This meant a reduction in the tuberculosis death rate from 142.3 to just six per 100,000 population. On the other hand, the number of deaths from heart disease rose from 2,372, in 1916, to 11,155 last year. Deaths from other degenerative diseases increased in like proportion. It is interesting to note that the total number of deaths from all causes in this State were approximately the same in 1916 as in 1955. The total increase in deaths from degenerative diseases, which was 14,153, far outnumbered the reduction in deaths from communicable diseases, which was 4,810. Our gains and losses both may be due, in part, to changes in the American way of life that have transpired since World War I. At that time tuberculosis was the Number One Killer, not only in North Carolina but throughout the nation.

Discussing the tuberculosis problem, a State epidemiologist once observed that all other communicable diseases have, for the most part, been brought under control. Successful preventive measures now can be taken against diphtheria, typhoid fever and whooping cough, as well as numerous others which are not contagious. The epidemiologist said tuberculosis is the last important outpost in the retreat of such diseases. Although tuberculosis has dropped out of the top ten killers as a leading cause of death, it is still putting up a fight; but it continues to give ground year after year. If we can ever deplete the reservoir of infection, the victory against tuberculosis will be as complete as that against other communicable diseases which now have been brought under control, but against which, of course, we must continue to remain on guard.

Many Factors Involved

Many factors apparently have entered into the successful fight against tuberculosis. This success has been coincidental with the rise in the American standard of living, including better housing facilities, and improvements in our nutrition practices. Better labor laws not only have improved working conditions in our factories and other places, where men and women are employed, but have brought shorter hours, giving the people more time for recreation. Therefore, it would seem that legislation has played some part in the successful fight against tuberculosis; but this would not have been accomplished without a wholesome public sentiment to back it up.

While it cannot be denied that we have passed through periods of sharp political differences and industrial unrest, we have, at the same time, made great progress in our social reforms. These, in turn, have reflected improvement in practically all quarters. We are a more humane people, and a more understanding people than we were, certainly around the turn of the century. There has been a wholesome improvement in our interracial relationship, which has resulted in better living conditions and larger opportunities for our Negro citizens. This has been brought about by evolution, rather than revolution. While there

have been occasional cases of misunderstanding, resulting from agitation, there has been a closer cooperation between the best minds of both races. We in America need fear no internal disruption, so long as those of all groups keep their thinking straight. There can be no doubt that laws requiring better working conditions here had a tendency to improve the health of those affected.

New Opportunities Presented

As we have overcome certain diseases of childhood, which formerly took a heavy toll of life each year, we have given those whose lives have been prolonged a better opportunity to face present-day problems. By continuing in school without interruption and by engaging in wholesome pursuits, including better recreational facilities, children of all groups, we believe, have been made healthier, as well as happier.

The greatest aid to tuberculosis control, referring once again to what formerly was called the "great White Plague", is the detection of cases early enough for the patients to be cured. The case-finding program is conducted on a purely voluntary basis. There may, at times, appear to be an increase in the number of tuberculosis cases in North Carolina, but this is due to the fact that more cases are being detected and brought out of hiding. Certainly more cures are being effected because the death rate continues to decline. The fight against tuberculosis has been long and hard, but not without its rewards. It is true in the matter of tuberculosis, as well as cancer, for example, that some people refrain from undergoing an examination because they do not wish to know it if they have the disease. With the advance of curative methods, however, these people are becoming fewer all the time.

Whether the comparisons presented in this article furnish a dark or a pleasant picture depends entirely on the light in which they are viewed. While it is true that there has been a tremendous rise in the number of deaths from degenerative diseases in recent years, this fact need not, in the opinion of the State Health Officer, cause us to become despondent. Among the 19,490 who died last year as the result of just three degenerative diseases, were many whose lives were prolonged because of the successful fight against the communicable diseases of childhood. We sometimes speak of saving human life. This is an erroneous idea. No life is ever saved; it is simply prolonged. We are told in the Bible that "it is appointed to every man once to die." We also find references in Holy Scripture to the "more abundant life." The fact that more people are dying of degenerative diseases means simply that more people are reaching an advanced age, having successfully survived the former perils of childhood. While it is true that 14,153 more people in North Carolina died last year of three degenerative diseases than in 1916, the total number of deaths, from all causes, was only 826 more, despite our greatly increased population. After all, the person who lives to die of a disease particularly associated with middle and late life has lived "the more abundant life," which Christ referred to while He was sojourning in this world in the flesh.

The whole story, then, adds up to the fact that, because of our succesful fight against diseases of childhood, thousands of years have been added to human life. This not only affects the present generation but will affect our posterity. Extension of human life means not only deferment of death but more happiness, more chances for service and more opportunities to increase longevity to an even greater extent.

The "More Abundant Life"

Some of the degenerative diseases are characterized by great suffering; on the other hand, so are some of the diseases of childhood, which have been brought under control. If a child escapes strangulation by diphtheria at the age of two to become the victim of heart disease at the age of fifty or sixty, certainly that child has won an

opportunity to lead a more abundant life, extending over half a century. However, the degenerative diseases present a problem not only to curative medicine and to public health, but to the people in general. What has been accomplished against communicable diseases was not an overnight victory but resulted from years of research and advancement in medical science. With these diseases virtually out of the way, medical science now can enter into an intensive study of the degenerative diseases with the hope of ultimately bringing them also under control. This need not be a vain vision. The medical miracles of the past may well be repeated or even exceeded in the fight on degenerative diseases and the further extension of the abundant life.

MERIT AWARD, 1956
Buncombe County Health Department

Asheville, North Carolina
North Carolina Public Health Association

For successful consolidation of a city-county health department under difficult and adverse local conditions; for a comprehensive program of public education on the values of good public health through the many media of communication, for development and improvement of facilities, equipment, administration and organization; for added emphasis on the new and increasingly important fields of public health such as multi-screening programs, juvenile delinquency and mental health, and for intensified and extensive education program for staff and community groups—the North Carolina Public Health Association is happy to confer the 1956 **Merit Award** to the Buncombe County Health Department.

Dr. Bertlyn Bosley
President

June 1, 1956

WORKERS IN LOCAL HEALTH DEPARTMENTS RECEIVING SERVICE PINS IN 1956 AFTER COMPLETING 25 YEARS OR MORE IN 1955

Beaufort County	Eva Augusta Cratt	1923-55	32 years
	Mary Elizabeth Respess	1927-55	28 years
Buncombe County	Margery J. Lord, M.D.	1918-55	37 years
	Chester C. Demaree	1922-55	33 years
	Mrs. Maude Setzer Morgan	1921-55	34 years
	Mae McFee	1914-54	40 years
	Rose McFee	1923-55	32 years
	Mrs. Lillyn N. Woodford	1924-55	31 years
Cabarrus County	John Roy Hege, M.D.	1916-17,1924-55	32 years
Cleveland County	Zack Perry Mitchell, M.D.	1925-55	30 years
	Walter C. Stallings	1926-43,1944-55	28 years
Columbus County	Floyd Johnson, M.D.	1921-55	34 years
	Elizabeth Belk Pratt	1925-31,1935-55	26 years
Cumberland County	M. T. Foster, M.D.	1930-55	25 years
	Mrs. Fannie Mann Jones	1929-55	26 years
	Mrs. Elizabeth McN. Thompson	1930-55	25 years

Durham County	Jesse Harrison Epperson	1915-55	40 years
	Mrs. Jessie Mock Rea	1927-55	28 years
	Mary Juanita Ross	1927-55	28 years
	Pearl G. Henderson	1923-55	32 years
Forsyth County	Mrs. Rachel T. Browning	1927-55	28 years
	Elise Johnson Early	1926-55	29 years
	Mildred Foreman	1927-55	28 years
	Benjamin J. Lindley, D.V.M.	1923-55	32 years
	Ellen Mildred Marsh	1926-55	29 years
	Ersie I. Pulliam	1928-32,1934-55	25 years
Granville County	Lucy Emma Webb	1923-55	25 years
Guilford County	George Brandt	1925-55	30 years
	Mrs. Willie Burt Raulston	1929-55	26 years
	Mrs. Jennie F. Brady	1926-55	29 years
Halifax County	Mrs. Davis Dickens Clark	1925-55	30 years
	E. A. Hastings	1920-55	35 years
	Mrs. Edith McN. Holmes	1924-55	31 years
Lenoir County	Mrs. Georgia K. Battle	1922-26,1931-55	28 years
Mecklenburg County	Alice Maye McLaughlin	1924-55	31 years
New Hanover County	Jennings Bryan Edwards	1926-55	29 years
	Mrs. Jeannette B. Hall	1928-55	27 years
	Hosea W. Hunter	1913-55	42 years
	Leroy I. Lassiter	1926-55	29 years
	Mrs. Clifford H. Richardson	1928-55	27 years
Robeson County	Furney B. Batts	1925-32,1934-55	28 years
	Eugene R. Hardin, M.D.	1915-17,1919-55	38 years
Rowan County	Charles W. Armstrong, M.D.	1919-55	36 years
	Henry A. Hoffman	1930-55	25 years
Sampson County	Mrs. Lillie P. Parker	1924-55	31 years
Stanly County	R. E. Fox, M.D.	1929-33,1934-55	25 years
Stokes County	Bernard L. Jessup, Sr.	1925-55	30 years
Vance County	Edna Louise Oliver	1925-55	30 years
Wake County	Jean Patricia Blue	1921-55	34 years
	Alexander C. Bulla, M.D.	1915-55	40 years
	Anna Claire Johnson	1925-55	30 years
	Flora Rhoda Wakefield	1920-23,1928-55	30 years
Wilson County	Mrs. Agnes W. Lenich	1930-55	25 years
City of Charlotte	Mrs. Lillian M. Blackmer	1924-55	31 years
	Alice Lee Grier	1927-55	28 years
	Mrs. Mary W. Grier	1928-55	27 years
	Mrs. Birdie B. Moore	1922-50,now ½ time	28 years
	Earl B. Roach	1928-55	27 years
	Mrs. Blanche H. Sansom	1920-55	35 years
City of Rocky Mount	Elizabeth B. Bryan	1922-55	33 years
	Annie L. Gaynor	1928-55	27 years
	Mary Sue Hannah	1929-55	26 years
	Sallie J. Shumate	1918-27,1933-55	31 years

WORKERS AT N. C. STATE BOARD OF HEALTH RECEIVING SERVICE PINS IN 1956 AFTER COMPLETING 25 YEARS OR MORE IN 1955

Mark C. Allen	1924-55	31 years
Mrs. Bertha B. Bailey	1930-55	25 years
Marion P. Bailey	1922-55	33 years
Ernest A. Branch, D.D.S.	1929-55	26 years
E. P. Caruthers	1920-55	35 years
Mrs. Margaret P. Copeland	1923-55	32 years
Ruth Council	1921-31,1940-55	25 years
Mrs. Marguerite C. Crowell	1923-55	32 years
Mary L. Davenport	1928-55	27 years
Mrs. Annie B. Edwards	1919-55	36 years
Amy Louise Fisher	1930-55	25 years
John H. Hamilton, M.D.	1920-55	35 years
John W. Harden	1923-55	32 years
Anne Lamb	1925-55	30 years
Robert M. McDaniel	1925-55	30 years
W. S. McKimmon	1915-19,1933-55	26 years
Lynn G. Maddry, Ph.D.	1929-55	26 years
Mrs. Ruth R. Mebane	1914-27,1943-55	25 years
Elizabeth Moore	1924-55	31 years
HenreEtta Owen	1920-55	35 years
Mabel Patton	1925-55	30 years
Mae Reynolds	1914-21,1924-55	38 years
Mamie Speas	1920-51,1952-55	34 years
Henry J. Stockard	1914-55	41 years
Fred W. Temple	1910-55	45 years
Mattie Woodward	1917-55	38 years
Avon H. Elliot, M.D.	1922-55	33 years
Lyman C. Holliday, D.D.S.	1926-55	29 years
Mrs. Lula K. Morrow	1918-55	37 years
David B. Nicholson	1922-55	33 years
Fannie Nicholson	1922-55	33 years

RECIPIENTS NOT IN OFFICIAL HEALTH AGENCIES, 1956

James T. Barnes	Executive Secretary Medical Society of North Carolina Capital Club Bldg., Raleigh	32 years
Franklin P. Blanchard	Retired, New Hanover Health Dept., 16 Jackson Dr., Wilmington	29 years
Roderick M. Buie, M.D.	Retired, Guilford Health Dept., 119 Kensington Rd., Greensboro	26 years
Roy J. Campbell	Professor of Biology, Salem College, Winston-Salem	32 years

Romulus L. Carlton, M.D.	Retired, Forsyth Health Dept., 2211 Elizabeth Ave., Charlotte	30 years
Mrs. Helen Debnam	Retired, State Board of Health, 904 W. Johnson St., Raleigh	30 years
Mrs. Elsie G. Guffey	Retired, State Board of Health, 2514 Greenbriar Rd., Winston-Salem	26 years
Lucy Hulin	Retired, State Board of Health, Pine Rest, Potecasi	36 years
James W. Kellogg	Retired, State Board of Health, 1607 Shepard St., Morehead City	40 years
Mrs. Bessie U. Lampley	Leave, State Board of Health, Ill, Johnson Rest Home, 15A S., Raleigh	32 years
Julia Nevercel	Biltmore Dairies, Asheville	28 years
W. S. Rankin, M.D.	Consultant for Duke Endowment, 2049 Briarwood Dr., Charlotte	46 years
Charles E. Spencer	Director Health and Physical Education, Dept. of Public Instruction, Raleigh	31 years
Mrs. Daisy R. Waller	Retired, Charlotte Health Dept., Matthews, N. C.	34 years
S. Virginia Wilson	Food and Nutrition Consultant Agriculture Extension Division N. C. State College, Raleigh	28 years
Georgia L. Ezzell	Retired, New Hanover Health Dept. 215 Wrightsville Ave., Wilmington	38 years

N. C. LIBRARY COMMISSION AND STATE LIBRARY MERGED

The beginning of the new fiscal year on July 1 marked the merging of two state agencies into one stronger, coordinated agency. The North Carolina Library Commission and the State Library, both located in the Library Building on the south side of the Capitol Square, merged and became the North Carolina State Library.

This followed immediately the retirement of Miss Carrie Broughton, who was in the employ of the former State Library for 54 years and was State Librarian from 1917 to June 30, 1956.

The necessary legislation for this merger came in the 1955 General Assembly, following a recommendation from the Governor's Study Commission. This Commission made a detailed study, with the assistance of the Institute of Government, of all the State's cultural and educational agencies. Their goal was to bring about more efficient operation and to eliminate duplication of materials and services.

The reorganized North Carolina State Library is under the direction of Mrs. Elizabeth H. Hughey, former secretary and director of the North Carolina Library Commission, and now State librarian. Her appointment was made by the North Carolina State Library Board, the membership of which includes six appointed by the Governor and two ex officio members: the Superintendent of Public Instruction and the librarian of the University of North Carolina.

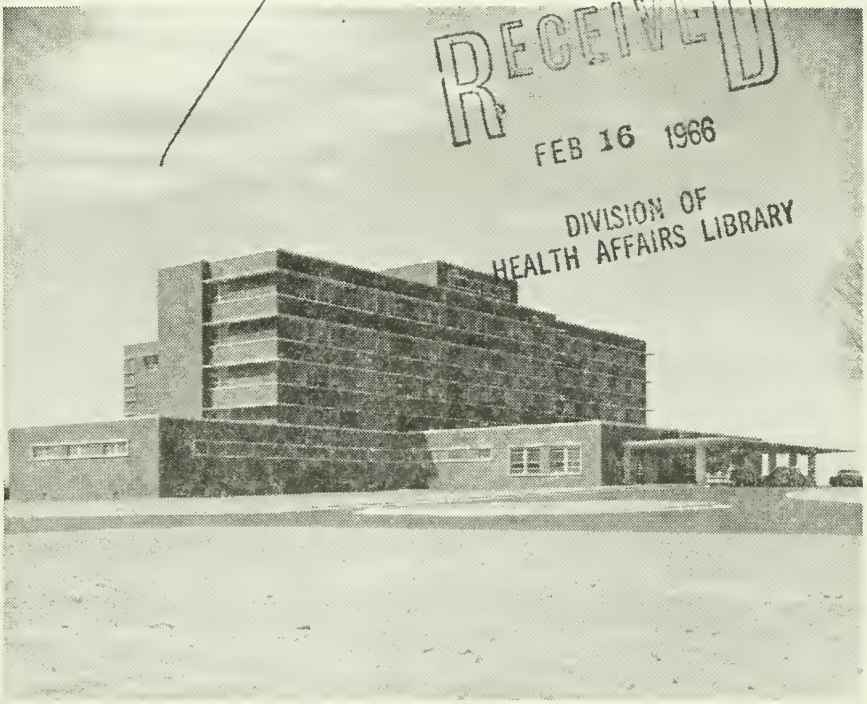
The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

This Bulletin will be sent free to any citizen of the State upon request

Entered as second-class matter at Postoffice at Raleigh, N. C. under Act of August 24, 1912
Published monthly at the office of the Secretary of the Board, Raleigh, N. C.

Vol. 71 AUGUST, 1956 No. 8



CAPE FEAR VALLEY HOSPITAL

FAYETTEVILLE

CONTENTS

THE HEART OF A CHILD*

WILLIS J. POTTS, M.D.
Chicago

The physical heart of a child is just a piece of living muscle marvelously adapted to its sole function of pumping blood. It is a rugged mechanism that will tolerate the ravages of infection, the scars resulting from impaired blood supply, and the approaches of surgeons' tools. It is the most efficient self-sustaining pump in the world. In a philosophical sense, the heart of a child is a delicate mechanism, sensitive to the slightest wounds of fear, insecurity, indifference, thoughtlessness, and misunderstanding. Many centuries before its physical function was known, the heart was considered the seat of all emotions and impulses, good and bad. From earliest infancy the heart of a child is subject to a constant stream

*Reprinted from The Journal of the American Medical Association, June 9, 1956, Vol. 161, pp. 487-490.

From The Children's Memorial Hospital.

Read before the state meeting of the Illinois Heart Association, LaSalle, Ill., on Nov. 17, 1955.

of mental and physical stimuli, but for the purpose of this discourse it reflects the results of stimuli with which it is bombarded during those short phases of life when the infant child suddenly meets head-on with doctors, illness, hospitalization, and operation.

Child-Doctor Relationship

Little children are afraid of doctors because of previous unpleasant procedures to which they have been subjected. They employ no system of logic in evaluating the virtues of medical or surgical treatment. Primarily they fear needles and "shots." For children's protection physicians have to do unpleasant things to them, such as giving painful immunizing injections and administering antibiotic drugs. Consequently, when taken to a doctor the child promptly bursts forth with, "Are you going to give me a shot?" A child associates the prick of a needle with a white coat or a nurse's uniform. We might as well admit it—until we have completely won the confidence of children we are ogres to them. Children are in a sense like dogs—they instinctively recognize antagonism and intolerance. It is a truism worthy of repetition that a doctor's successful approach to a child is based on a fundamental love of children and a cultivated tolerance of their eccentricities. However, in defense of the doctor, I believe that the screaming, not too ill, uncooperative child, hovered over by indulgent parents carrying on unintelligible baby talk in a vain effort to comfort their little darling, is a trial of patience to any doctor. A carefully developed deaf ear to unjustified screaming, a zealously masked look covering signs of irritation, and a completely camouflaged desire to stuff one's hankerchief in a wide open mouth pay dividends. A little time and even a smile, if authentic, will soon bring peace and cooperation. Interestingly enough, many of the "badly behaved" children become very amenable when they find out that after all the doctor is their friend and is actually trying to help them.

The child reflects the attitude of its parents. The mother who constantly worries about her child's every tiny variation from normal—what may not even be termed an illness—will soon have a child who magnifies complaints and courts disease. The seed of psychosomatic ailments is planted and will bear much fruit in later life. Mothers in general know that about 90% of children's ailments are self-limited, but anxiety about a possible serious illness often overshadows good judgment. Parents neglect their own infirmities, but when their baby is sick —especially the first one—they fly to the doctor. That is good for the pediatrician but not for the child. It too soon learns the power of accentuating complaints and thereby obtaining that delightful status of being the center of the stage.

Actually there are few diseases that will not allow a reasonable time for intelligent observation by parents. Those few diseases that require prompt medical attention have such specific and characteristic signs of variation from normal that an observant mother may promptly recognize the need for immediate help. For most of the simple ailments, not severe enough to keep a child away from his favorite television program, it makes little difference whether a tablet of aspirin is given or a bit of goose grease is rubbed on the sore place.

Impact of Hospitalization

The doctor's primary concern is with the effect upon the emotions of the infant or child whose illness is severe enough to require hospitalization and operation. I have often wondered what sort of a scar, how deep and how serious, is left on the heart of a child who is torn from its parents and suddenly tossed into hospital environment associated in its mind with insecurity and pain. Because people get sick, there must be hospitals. Adults are presumably reasonable creatures who when ill go to hospitals more or less willingly because they know they have to do so to get well. Doctors work

in hospitals every day and think them wonderful, but as patients, most of them hate hospitals and their routine. Imagine how a child feels. Children's hospitals are marvelous institutions to parents the day they take home their child who was ill and now is well. That does not change the fact that to a child a hospital experience is often a nightmare. Before the age of reason, a child is unable to comprehend why he should have been subjected to the emotional insecurity of separation from his mother. Even the finest hospital falls far short of what an ideal hospital should be. If nursing service were limitless, and if laws of economics could be repealed, there would be no problem. A mother then would simply bring her child to the hospital and deliver it to a nurse well trained in scientific care of children and in the art of substitute motherhood. Whether the child remained in the institution three days or three months would make little difference. Normal develoment would not be impeded and emotional turmoil would be avoided. It could be as simple as that.

Of necessity, hospital care for children has become extremely complicated and, consequently, has a tendency to become too impersonal. We order intravenously given fluids, blood transfusions, injections of drugs, nasal tubes, blood cell counts, and a host of other things. All are necessary for recovery of the patient, but how can a little child comprehend this and how can residents, nurses, and technicians get their work done if they had to spend two-thirds of their time explaining to unwilling listeners the object of each move? When dealing with immature and uncomprehending minds, parents and doctors have to do the best they can to minimize the rips and tears in the emotional patterns of the children. Little is known about the memory of a child during its first year of life, but it is known that reactions to fear and insecurity manifest themselves early. An infant up to about one year of age is indifferent to physical surroundings but not by any means indifferent to the people who care for him. Ordinarily, it is believed that the infant aged 6 months or less does not care whether the mother is present. Actually, the infant does not care, so long as a substitute mother gives the same tender loving care. Nurses act as substitute mothers. Because they are women, and in their not too subconscious minds are looking forward to the day when they will be caring for their own children, they easily learn the technique of administering tender loving care to the young infant. Whenever possible all infants are fed by a nurse holding the baby on her lap. Sick or well, the infant loves contact. Observe in unspoiled nature how a mother animal guards, fondles, and cares for its young and you will realize the utter folly of the advice to "leave the child alone." An animal outgrows babyhood rapidly, but the human, helpless for years, requires long and constant security provided by mother. The child needs protection and love given by instinct, uninhibited by theoretical advisors and professional baby raisers.

Understanding the Sick Child

Infants require stimulation—auditory, visual and tactile. Their development—entirely by the route of their senses—must continue during those periods of time that are spent in a hospital. Of course, an illness of a week or two is going to leave no scar. The child's memory of pain is short, and the ability to harbor resentment has not yet developed. Prolonged illness is another story. It has been shown again and again by psychiatrists that infants do poorly in a foundling home where they get a minimum of attention. Even under the most hygienic surroundings, they develop poorly physically and mentally. The mortality rate is higher in these children than it is in even a rather poor home where they get essential tender loving care. This case came to my attention recently. A 6-week-old normal male infant was brought to the hospital with a broken femur. It was necessary to put both legs up in overhead traction. The infant lay

on its back 24 hours each day and was fed in that position. Circumstances were such that he had no visitors. After about three weeks the infant lay in his bed in a constantly listless state, indifferent to food and people. He did not cry or fuss—just lay there with eyes half closed and, one might say, shut off from the world. At this time a volunteer worker was assigned to this infant eight hours a day. She fed the baby while supporting his head and shoulders. During waking hours she played with and fondled him. In another three weeks when ready to go home he had gained weight and was smiling, cooing, and acting as a 3-month-old child should. This infant had not been neglected. He had been fed, bathed, and kept clean, but that is not enough for any child sick or well. They need thoughtful stimulation, and that stimulation of their senses is what gives security and pleasure in living, synonymous with growth and development.

An 8-month-old baby girl so severely burned that recovery seemed impossible was kept alive and recovered because of nursing care. Plasma could not be administered fast enough to replace proteins lost from oozing wounds. Only food could keep up the child's strength. It is not easy to get food into a child who has constant pain and a temperature of 103 to 104 F (39.4 to 40 C) every day. It was accomplished by patience. As soon as the child could be picked up, she was fed on a nurse's lap night and day. She recovered. She has physical but, I am quite sure, no emotional scars. When the mother took her child home she thought a facetious suggestion that she include in the child's name the initials R. N. had been seriously made.

To mothers I suggest that the child be given the attention he craves, sick or well. A sick baby in the hospital should be visited every day, and at the earliest possible date he should be taken home. There is no place in the world like home for a child. Even the poorest home, where there is accord, is better than the finest hospital. If the child must remain in the hospital long, visit often and crowd in as much attention as possible during those few hours. Whatever spoiling may be done during visiting hours will be counteracted during the rest of the day and night. The child will naturally cry when the parent leaves, but return visits will dispel the fear of being forgotten or deserted.

The sensitive 3-year-old or 4-year-old children requiring hospitalization and operation are the ones for whom I am sorry. While seriously ill they have not enough energy to scream for their parents, but the moment they improve they begin hollering for their "mommy." Many, many times I have seen such little children standing in their high-sided cribs, their faces stained with tears and their pupils dilated with fear, sobbing interminably, "I want my mommy." You can pick them up, offer them toys, and tell them over and over that "mommy" is coming. Their only response is more wailing and "I want my mommy now." A 3-year-old child has no sense of time. "Pretty soon" means absolutely nothing. Anything they want, they want right now. A 3-year-old boy had a rather simple operation normally requiring about a five-day stay in the hospital. He was in a ward—no private room was available. When the parents left after visiting hours he began to scream and continued most of the night and the following day until the parents returned. There was nothing to do but let the child go home. No physical complications could be worse than having this youngster tear his emotional system to pieces.

Children from 5 to 8 years of age are often equally unhappy but can be steered into a more equable frame of mind during the long 21 hours between visiting periods, provided there are enough nurses and helpers to give them their time and personal attention. Insecurity and fear, to a far greater degree than is realized, plague these children who are sick and, against their wishes, are forced into a hospital. The best that can be done in the present state of hospital tradition and medical

necessity is to prepare them for the unpleasant incidents that suddenly face them and in love and understanding soften the blow to their immature minds. For older children nothing in the field of medicine is finer nor more essential than an understanding nurse, resident, or intern who, with cultivated sixth sense, makes them feel that they have not entered torture chambers but have been admitted to a place where folks are going to help them get well and where they are interested in their happiness.

Child's Reaction to Illness and Hospitalization

It never ceases to be interesting to watch the reaction of children entering a hospital for operation. It varies all the way from childish bravado to sheer panic. A 7-year-old boy was brought in because of a question of hernia. Examination proved there was no hernia; and as the boy left the examining room he made a gesture of wiping sweat from his brow and exclaimed, "Boy, that was a close one." A younger child clarified his position after I had explained to him that he would have to have an operation. He said, "I hate you, you stinker." Another little boy said in response to what he considered bad news, "You know what? Lions eat people and I hope they eat you." One will not have to worry that such children will have repressions.

Children growing up in an atmosphere of freedom will be well-adjusted extroverts if these liberties are balanced with intelligent restrictions. Some children, unfortunately subjected to no limitations at home, expect the same indulgence when entering a hospital. No attempt is made to alter a child's social pattern during a brief hospital stay, but staff members are forced, for the good of all, to impose some limitations upon children who are patients for many months. It has been interesting to observe that children actually enjoy the intelligent restrictions of an orderly life. Children love established routine. When they learn what they may do and what they may not do they become cooperative, are happier, and are more secure than when they are completely unrestricted.

Hospital personnel must deal with every type of child from the overindulged child of supersolicitous parents who expect every whim to be granted upon demand to the affable child who patiently accepts without objection the routine of the hospital. Children, like some adults, learn rapidly that the gentle voice and the affable smile get them much more service than harsh and sullen demands. An interesting observation has been made at Children's Memorial Hospital on the adjustability of children. Patients to be operated upon for congenital heart disease come from many localities and many states. It has become a sort of game to pick the area from which such a patient comes. The percentage of correct guesses eliminates chance as a factor. Children who come from small towns, especially from farms, can be spotted in a moment. They are easy to care for, accept hospital routine, and do not scream when being examined. Say to one of these children, "May I listen to your heart?" and the child lifts up his gown and calmy accepts half a dozen stethoscopes on his chest. Why is this true—if it is? I believe these children are so because they come from stable, closely knit families. Many come from farms where the family is the center of all activity. These children know from experience and few words of direction what they may or may not do. When their parents tell them they are to go to a hospital and must be good boys or girls they are just that. It is routine for them to accept what comes from day to day. The evening before operation parents are naturally on edge. If they were not concerned they would not be quite normal. Outside the door they ask about the danger of the operation, and they get what they are entitled to—a frank answer. The truth of the matter is that today with good anesthesia, guarded asepsis, antibiotic drugs, and trained surgeons most operations are safer than a cross country trip in an automobile.

Preparation for Operation

At Children's Memorial Hospital the child is told exactly what is going to happen. Often the youngster will ask, "Are you going to cut me?" A bit of license is taken at that point, and he is told, "We are going to operate upon you and fix that sore place." If the child is 3 to 5 years old he is told that in the morning he will be moved in his bed to a special room where he will see nurses and doctors with funny things called masks on their faces. He will be put on an extra fancy table and be allowed to blow up a balloon. As he blows up the balloon he will get sleepy, and when he wakes up he will be back in his room where mommy and daddy will be waiting for him. It is as simple as that. The older child, 6 to 7 years of age, is likewise told in words he can understand exactly what will happen. After the questions have been answered, the child is content and goes to sleep. The mother is the one who gets the sleeping pill. One child said after the explanation about anesthesia and operation, "You don't have to tell me that stuff. I know all about it—I saw it on TV."

I began to explain to an 11-year-old girl, on the day before her operation for a patent ductus arteriosus what was expected to be done on the following day. The mother jumped up grabbed me by the arm, and steered me out of the room. "Nancy doesn't know what she's here for. I don't want her to know. She thinks she's here for another test." I promptly led the mother back into the room and said to Nancy, "Do you know why you are here? "Sure," she said, "I'm going to have an operation on my heart." You cannot fool children, and, if you try, be prepared for a terrific backfire. When Nancy is 16 she will be fooling her mother and be an expert at it because of her early first-class tutoring. Children get such distorted ideas of hospitals and operations. A 6-year-old girl was admitted to the hospital for an operation. When I entered her room the child was clinging to her mother and sobbing hysterically. Nothing would comfort her. After long questioning about the usual things that cause pain, she finally blurted out, "I don't want to die." Then the full story came out. A few weeks previously one of the children from her room in school had been taken to a hospital for operation and had died. It is easy to understand how her immature mind, knowing nothing about the ailment of her playmate, jumped to the conclusion that all children admitted to a hospital die. She was finally persuaded to go on rounds through the hospital to see other children who had had the same operation she was to have. I shall never forget that little cold, moist hand in mine as we visited other convalescent patients. One could see the cloud of fear being dispelled as she stared at the children in their beds coloring pictures or playing with toys. She returned to her mother with a smile. Incidentally, she went through the operation and postoperative period without a whimper.

An 11-year old boy who had been in the hospital six months and had had seven operations and more than 20 blood transfusions said to his surgeon when he finally recovered and was about to leave the hospital, "Even after all those operations I still like you." Children are such amazing little creatures. Tell them in simple words why they have to go to the doctor or the hospital or why they have to have an operation and, in most instances, they will cooperate in a fashion that adults might well emulate. Faith and trust are completely unspoiled when children are dealt with honestly. So little effort; so great the reward.

Comment

The mystical heart of a chld is a precious and beautiful thing. It is marred only by wounds of a thoughtless and not too intelligent world. In a physical sense the heart is a tough organ; a marvelous mechanism that mostly without repairs, will give valiant pumping service up to a hundred years. In an emotional sense it is susceptible to wounds of indifference, thoughtless-

ness, and neglect and during episodes of illness is especially vulnerable. The heart of a child is mysteriously moulded by parents, teachers, playmates, and all those with whom it comes in contact. Physicians wish during those short but violent episodes of illness to avoid wounds that will leave irreparable scars. I am convinced that the heart of a child sunned by love, security, and understanding will be able to withstand the storms of illness and pain.

SUPPLY VERSUS DEMAND*

At the meeting of the Governor's Advisory Committee on Poliomyelitis Vaccine June 21, Dr. J. W. Roy Norton, State Health Director, announced that North Carolina is now receiving more Salk Vaccine than is being given to the children of the state. This would be a good omen if those eligible for the vaccine had received it; however, this is not the case—as there are many children and pregnant women in North Carolina who have not received a single injection of the vaccine, and only a small percentage of eligible recipients have received more than the first "shot." This is potentially a serious and alarming situation when we stop to think upon the repercussions which could come to us as Medical Practitioners and Family Doctors—should an epidemic "break-out" in North Carolina.

This unhealthy situation is not entirely the fault of the doctors of North Carolina, but we would have little defense to offer should such a malady befall our people, and a parent ask, "Why did you not vaccinate my child?" As General Practitioners we pride ourselves on the personal and dignified term—family doctor, or family health councilor. This is what we as General Practitioners should be, and if we are to deserve or retain this humanitarian title, we *must* fulfilll its connotation. To say: "I did not have the vaccine, I did not think to mention it, or I just —etc., etc., places us in a vulnerable position and makes our title *family health councilor* a hollow sham and "tinkling symbol."

This lack of interest on the part of the public and the medical profession of North Carolina has caused the Governor's Advisory Committee and the State Board of Health grave concern. As a result, Dr. Donald Koonce, president of the State Medical Society, has appointed a committee of Health officers, Pediatricians, Obstetricians, and General Practitioners to study the problem and recommend ways and means "to step up" immunizing the children of North Carolina against Polio. This should be a useless committee. Its necessity should cause us all chagrin as well as concern. Let us therefore face this problem and replace chagrin with pride by the fact that as family doctors we are putting meaning in our title and "spreading the word" among our clientele and educating them in the Preventive Phase of Medicine that immunization against is more desirable and worthwhile than treatment of any disease, and "an Ounce of Prevention is worth more than a Pound of Cure" when we are dealing with Polio.

The chairman of the Polio-Vaccine Committee of the State Medical Society has singled out two groups in the Medical Profession who have been especialy derelict in their public duty in "spreading the word" and educating their patients to the value of the Salk Vaccine for our children. Needless to say the Generalists are included in this grouping. I am unable to refute this accusation, because I have been derelict myself. May my dereliction not have caused one child to be a polio victim or one patient to suffer the anxiety of "what might have been" is my earnest plea.

**Tar Heel Practitioner*

The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

This Bulletin will be sent free to any citizen of the State upon request

Entered as second-class matter at Postoffice at Raleigh, N. C. under Act of August 24, 1912
Published monthly at the office of the Secretary of the Board, Raleigh, N. C.

Vol. 71 SEPTEMBER, 1956 No. 9

WASHINGTON COUNTY HEALTH CENTER

PLYMOUTH, NORTH CAROLINA

CONTENTS

MATERNAL AND CHILD HEALTH
(Report of a Special Project—1954-1955)

by

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and

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The MCH biennium plan, rewritten in 1953-1954, made special note of several recognized needs that affect the health and welfare of mothers and children. Points of emphasis toward solutions of these were stated. This report will review one of these problems, "more adequate nursing care of premature infants," and what has been done.

It has been recognized that maternal and infant mortality rates are the most sensitive indices we have of what the health of a community actually is. Al-

though we do not have as accurate data on the morbidity of mothers and children, some conclusions can be justifiably drawn. It is known that medical, nursing and hospital care may be somewhat unevenly distributed throughout the state to meet the needs for better care of premature babies. Dr. Robert J. Murphy thoroughly discussed these problems in previous reports. He concluded that partial solution was possible by increasing the number of secondary premature centers in smaller hospitals.[1]

It is apparent that the present limited number of beds (32 in the 6 primary premature centers) receiving funds for care is inadequate to serve the premature babies born in North Carolina each year. In 1953 there were 9,463 premature births. Cost of such care would be prohibitive too. Fortunately, the greatest number of premature babies are in the upper weight ranges at birth (69% above 4 pounds 6 ounces).[2] It is logical to assume that, with some additional assistance to nursing service on special premature care, many hospitals would be able to give more adequate service to these in the regular newborn nurseries. More hospitals could meet the standards set up for classification as secondary centers also.

Since 1948 the teaching program has been developed along the lines of a 3-4 weeks course of instruction at Duke Hospital Premature Center, and 1-2 days institute or work-shop plan at various points in the state where general review of medical and nursing care needs was given to public health and hospital nurses. It was thought that this type of educational program might have reached the maximum number of nurses possible. It was also known that in many instances nurses working in hospitals or health departments at the time of taking the special work had resigned from their original positions or transferred to other services. While the individual might have learned a great deal, the hospital or department in question might not have other nurses well enough prepared to teach and supervise the care of premature babies.

In 1953 this program was expanded to include follow-up visits to hospitals and health departments from which a nurse had been sent for this special preparation. Other people were included in these conferences, in addition to time spent with the nurses either in the hospital nurseries or the health departments to put into effect good standards of care as a follow-up of teaching already done. Prior to March, 1952, 4 secondary centers had been set up, and since then 5 others have been established. All of these were included in this plan of field work. However, one of these centers has not been able to function as such for the admission of infants born outside of the hospital because of personnel and financial difficulties.

It became apparant while visiting the hospitals that most of them cannot, in a practical way, set up separate premature units but must care for these babies in the regular nursery. This implies a different approach from the standpoint of setting up nursery techniques, procedures, physical environment, etc. It was evident that the majority of premature births occur in families bordering on or in the medically indigent group. It was also very obvious that the law passed by the Legislature in 1949 (Section 130-292) making it compulsory to report the birth of a premature baby to the local health department within 24 hours was not being carried out. As proof of this, during 1953 in 77 of the 100 counties in the state, less than one fourth of these babies were known to the nursing service in local health departments. This meant there was no follow-up nursing

(1) Robert J. Murphy, M.D., "North Carolina Infant Care Program," *The North Carolina Medical Journal,* Vol. XII. (January 1951), p. 12-18.
Robert J. Murphy, M.D., "Evaluation of the North Carolina Infant Care Program," *The North Carolina Medical Journal,* Vol. XIII. (March 1952), p. 125-128.

(2) Ibid.

care or supervision for most of the infants who survived and were discharged from the hospitals. In only 6 counties were more than half of the babies known to be under some kind of nursing supervision.

Lack of understanding of how the premature program works, changes in personnel, financial difficulties, lack of working referral systems and what is involved in a special service area in a hospital were all brought out very vividly in one county where the hospital, health department and department of public welfare personnel were brought together and these problems discussed.

With all of the information that had been obtained, it seemed a good opportunity to further the value of the premature program by including more content of normal full-term care. Consideration was given to many factors, and it was thought worthwhile to select an area for concentrated consultation to hospitals and health department staffs to help evaluate and set up good standards of care for newborn infants —with special emphasis on the needs of the premature. These plans were developed through cooperative work of all the people interested in the State Premature Care Program.

One of the bases for area selection was that it should be located where there was an already operating secondary center. The Annie Penn Hospital in Reidsville was chosen, and there was information that premature babies from some of the surrounding counties had been admitted to this center for care. Because of comparable needs and resources, the following counties were selected: Alamance, Caswell, Davie, Rockingham, Stokes, Surry and Yadkin. Some of the adjacent counties with more adequate facilities and resources were not included, as it was thought necessary to keep the area small enough so that the nurses working on this special project would be able to carry on their regular work also.

As there was no previous program to serve as a guide in planning, a number of possibilities were considered. The MCH consultant with the State Board of Health and the instructor of the Premature Program at Duke Hospital were to be responsible for this field work with the assistance of the generalized public health nurse consultant in the area. Letters to the local health departments requested that some one on the nursing staff join the consultants on visits to all of the hospitals. Letters to the hospital administrators and superintendents of nursing explained that, as a part of the educational program, consultation services were being offered to assist in evaluating the standards of care in newborn nurseries and as follow-up visits to the nurses who had taken any of the special preparation. The State Department of Public Welfare made appointments with all of its offices in the counties, which helped to pave the way for us to come to a better understanding of the problems facing all members of the health team.

An error was made in estimating the time these visits would require. Instead of a few weeks, seven months passed before all the requests could be met. Routine work went on at the same time, and schedules were worked out for the convenience of all the departments. Return visits were made as indicated. In several instances 3-5 days were spent working with the hospital nurses in the actual nursery situation and with public health nurses to solve some of the problems of continued supervision of selected infants after discharge from the hospital.

Recognition of the broad aspects of the problem included medical, hospital, public health and welfare resources as essential in stimulation of local recognition of problems related to newborn babies. Entree was possible because of the already existing teaching program related to premature care. It was believed that interest of local groups would be stimulated by these resource people. Our real objective was to reach into all the problems of newborn care—of the normal baby as well as the baby with a special need. This might include

parent education, the great need for better prenatal medical care for all expectant mothers (a special project on this was underway at the same time) nutritional education, financial assistance, and general understanding that mothers and children are first priorities.

Preliminary or introductory visits served several purposes. People began to know and understand each other's problems. We had some opportunity of assessing the individual needs in the hospitals and health departments and correlating these with the great amount of information obtained from many sources which had given us some picture of newborn infant needs in these counties.

Initially the attitudes met could be summed up as follows: "good idea, but we don't think it will work"; "too many blocks"; "other people aren't interested"; "no problems"; "we *need* help—willing to work at it"; and some polite resistance. As more visits were made and individual consultation given, interest grew—more rapidly in some situations than in others. Special effort was made to understand the various, real problems in the situations and to relate recommendations to these in as practical a manner as possible. In those instances where desirable changes could be made every possibility was considered to eliminate hazards and improve care to the individual infant within the framework of the nursing service. As an illustration, in one small hospital with limited professional staff and untrained (except on the job) auxiliary workers help was given to work out simple, effective instruction procedures and to determine in what areas in the hospital the nursery aides might work. The staff was inadequate to assign one person to nursery duty alone, nor did the daily average number of babies warrant this in view of the total needs of the hospital. We believe this time-consuming method was most essential (if not the hinge of success) if one considers the gradual changes in attitudes and understanding.

When this special project was first considered, all the merits and demerits of large group meetings were discussed. The more usual plan of inviting groups of people to a meeting, forming committees to study special areas and planning for return group discussion and progress reports was ruled out. We believed that the more limited special consultation in the actual work situation had demonstrated its value. We were not sure a large symposium involving all the counties would be successful. However, most of the local people thought that a later group meeting where problems could be discussed together would be helpful. We simply operated this project in reverse.

Our ultimate goal in holding a symposium was to provide a medium for open expression of problems *after* the people concerned had had an opportunity to work some of these out. It was hoped there would be a better understanding of the scope of the total problem; clarification and interpretation of services and resources from all members of the health team; and stimulation to action by individual counties on learning how other areas had solved some of the same problems. Above all, it was hoped that this would open the door for future planning.

After the 7 months of work this meeting was held at the Belvedere Hotel in Reidsville on March 23, 1955. Six of the seven counties were represented by hospital, health and welfare department personnel, local physicians, pediatrician, interested lay people and volunteer workers. Dr. A. H. Elliott, director of the Division of Personal Health, and Dr. James F. Donnelly, obstetric consultant to the State Board of Health, participated as discussion leaders. Mrs. Myra Mitchner, supervisor of Child Welfare Services of the State Department of Public Welfare, Dr. Robert Balsley, pediatrician, Dr. Miles Gullingsrud, health officer, and Mr. James Harbison, administrator of Annie Penn Hospital, discussed various aspects of the problems and acted as resource people for the general discussions. Nurses, nutrition workers, medical social workers, special field representatives of

the Venereal Disease Control Section of the State Board of Health and nurses and instructors from Duke Hospital and the School of Public Health at the University of North Carolina all had some contributions to make toward better understanding of what goes into the total service for infants and children.

Dr. Angus McBryde, associate professor of pediatrics at Duke Medical School and chairman of the North Carolina Committee on Child Welfare and of the Committee on the Fetus and Newborn, gave a comprehensive and interesting outline of the medical needs of infants and how some of the problems related to the prematures can be met. He stressed the great need for competent medical care in the prenatal period, the significance of statistics in planning a preventive program, needs of small hospitals and the imperative need for continuity of care for babies. The problem of prenatal medical care was reinforced by Dr. Donnelly's discussion of the problems from the entire state standpoint, what is being done at the present time and plans for the future. Dr. Elliot presented the report of the financial part of the premature care program, reiterating the need for local solutions, since demonstration funds are always limited in amount and length of time available. Mr. Harbison and Dr. Balsley described the very real problems facing the local hospitals from both the medical and nursing care viewpoints and the financial difficulties in long-term hospital care. Mr. Harbison told how better publicity had helped to stimulate local civic groups to contribute to some of the needs, and he thought this method might be as successful in other areas as it had been for the Annie Penn Hospital. Dr. Gullingsrud summarized the general points that had been discusssed and projected some of the ideas that all the groups might work on during the coming year. During the day it was interesting to see how often members of the group were able to interrupt the speaker of the moment to tell how they had solved some of the problems being discussed. You could almost see some others thinking —"we never thought of that—but it would work!"

No effort was made to keep this meeting on a formal basis, so it was very interesting to observe that all the problems we had noted in the field work were voluntarily brought up for discussion by members of the group. While some of the counties did have unique problems, most of them had similar ones. By and large, the outstanding ones were: no hospital facilities, or limited medical and hospital care except in emergencies; nursery techniques; job qualifications; professional and auxiliary personnel; visiting hours; admissions of outside-born babies into hospitals other than secondary centers; responsibility of hospitals for their own prematurely born infants; poor referral systems for continuity of nursing care; parents' classes; the right kind of publicity; and the costs of hospital and medical care.

It was possible to summarize some of the things that had been accomplished to this date. In many areas, the local hospitals had benefitted immediately by raising the standards of care for the newborn. (Publications of Standards and Recommendations materials were made available to the nursery staffs.) In one county definite plans were put into operation for referral of all premature infants in the secondary center to the public health nurse for continued supervision after discharge from the hospital. In another county the same interest in a referral system was shared by all except the medical group, and without their cooperation nothing could be done. One county devised a report postal card of all deliveries in the hospital to be sent to the health department. This enabled the nurses to select those mothers who seemed to be in the greatest need of nursing assistance. This same county also began its plans for classes for expectant mothers, and the instructor in the parent-teaching program at Duke Hospital helped the nurses work on this. There was evidence in all

places that working relations between all agencies had reached a higher level of better understanding of different functions and responsibilities.

Now that another year has gone by and more routine visits have been made to these counties, some of the additional gains can be mentioned. One hospital sent two nurses to Duke for the special course in premature care; the referral system for premature infants has been expanded to include other newborn infants where nursing supervision is indicated; two counties have been able to give care to all their premature babies without having any on the state program; more than 60% of this cost has been paid to the hospital, and the balance will be forthcoming; mothers' classes have been planned and are now being given with the cooperation and assistance of some of the physicians; the public health nurses are now participating in the well-baby clinic sponsored by a local civic group; two hospitals have been given Isolettes purchased by civic groups; health department prenatal clinics have been strengthened, and there is better nursing supervision of these patients; admission to the hospital for mothers or babies when indicated has been worked out in another county through cooperative work between the health officer, the hospital and the department of public welfare; some of the nursery problems have been solved in this hospital also; the instructor in parents' classes at Duke Hospital has worked with hospital and health department nurses in two other counties on review of nursing service in obstetrics and how to plan group teaching; another hospital has been able to take care of its own prematurely born infants, when, in the past, these babies had to be transferred to a center. In several areas the medical understanding and cooperation have been most outstanding, and in every instance there seem to be better understanding and interest in the area of newborn care.

Continued consultation is being given these counties, although at the present time there is not a consultant nurse from the clinical area of newborn service. It is expected that this position will be filled in the fall of 1956, when it is hoped we will be able to extend this type of service to other areas.

It would be grossly inaccurate to say that these changes have stemmed entirely from the work that went into this special project. Many factors were, and have been, at work for some time. In some instances, staffs have become more stabilized and there have been local people interested and prepared to carry on these ideas. Let us say, only, that these changes coincided with the time and effort that were put into this project. It substantiates the belief some of us have that individual assistance in the actual work situation is more meaningful and beneficial for long-term results than the more formalized methods of teaching alone. While both are effective to some degree, the follow-up work with nursing staffs is essential to keep the content of teaching practical.

IN MEMORY

Carter Rea Scearce who died August 6, 1956, was employed by the Guilford County Health Department for four years.

* * * * *

In her short life she gave freely and generously of her goodness to her family, to her church, and to nursing. In her quiet, sincere manner she put greatness into small things. In her work as a public health nurse she had the ability to meet her patients where she found them and to lead them to the threshold of better health. Her community families respected her health teachings because she helped them to see their own needs. They loved her for the comfort and assur-

ance she brought into their homes. In her dealings with school and community workers she was always cooperative and was sensitive to the needs of the group. In her faithfulness to nursing she has inspired us to better performance and improved service.

Her devotion and loyalty were always the same, cradled within her code of good living where there was no place for pettiness. In judging she always looked to truth to find the answer. Illness and pain never daunted her faith in tomorrow. In her life God was never more than a whisper away.

* * * * *

The above has been offered in sincere sympathy to her bereaved husband, her little girl and boy, her mother, other relatives and friends.

Lucy Lopp
Supervising Nurse
Guilford County Health Dept.
936 Montlieu Avenue
High Point, North Carolina

NOTES AND COMMENT

BY THE EDITOR

AUTO PASSENGERS ADVISED TO PROTECT THEMSELVES

It's better to lose a friend than to lose your life, a health and safety consultant said recently.

Dr. Carl J. Potthoff, in his safety and first aid column in Today's Health, published by the American Medical Association, said people should not take risks with an irresponsible automobile driver, even if it means offending him.

"Although statistics from nationwide experience are not available, it is possible that half or more of nonpedestrian traffic accidents that result in death or permanent injury happen to people whose only error lay in accompanying others who did the driving," he said. "Some of these drivers pay little attention to their responsibility for passengers.

"Sometimes we do not like to reject rides with such drivers; we do not like to remonstrate with the speeder; we do not like to request that a reckless driver stop so that we can leave the car.

"We hesitate to offend him; but he is entirely willing to jeopardize our life.

"Consider the passengers who are driving to or from a fishing or vacation resort, the teen-age girl who is bound to or from a dance, the group that is going to or from a sports event, a convention, a gala meeting. If you study newspaper accident accounts, you will quickly note that it is the passengers who often pay the price for the careless driving of others."

DOCTOR GIVES ADVICE ON CHILDHOOD CONVULSIONS

Convulsions in children are alarming, but when they occur the best thing to do is to "keep your head" and call your doctor, a Milwaukee pediatrician has said.

It is essential to protect the child from injuring himself and others, but care must be taken not to injure him in the process.

"Many more children have been injured by well-meaning parents or helpers than have injured themselves in a convulsion," Dr. M. G. Peterman said, adding that he had seen more children burned than helped by being immersed in hot water.

When the doctor arrives and starts asking questions instead of treating the child, don't be alarmed, he said. The convulsion will probably be over by then, but the underlying cause of the convulsion must be found. A convulsion is a symptom, not a disease, and treatment must be aimed at the cause.

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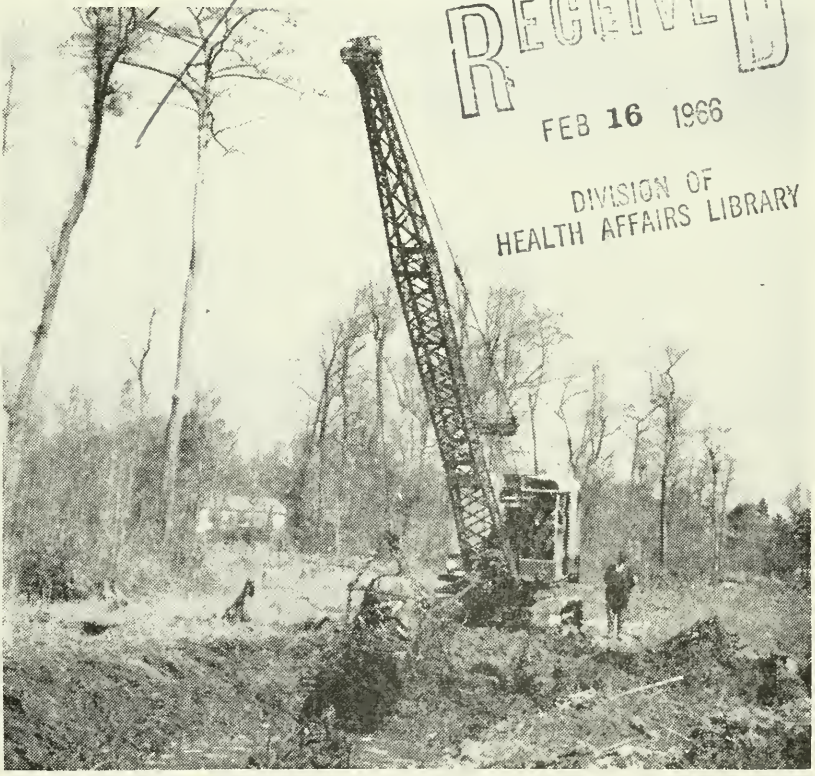
Vol. 71 OCTOBER, 1956 No. 10



EFFECTIVE LONG RANGE MOSQUITO CONTROL BY MEANS OF DRAINAGE

CONTENTS

A STUDY OF THE EXPOSURE OF THERMAL AEROSOL MACHINE OPERATORS TO DDT

BY EDGAR F. SEAGLE, M.S.P.H.

Industrial Hygiene Section
Charlotte Health Department
Charlotte, N. C.

Dichlorodiphenyltrichloroethane (DDT) has been and is one of the greatest discoveries in the field of pesticides. This chlorinated hydrocarbon has wide application as an insecticide and is used extensively in large mosquito control programs. To this writer's knowledge there have been no fatal accidents to exposed persons from the wide usage of DDT emulsions and solutions for fly and mosquito control over the country; however, it is not only well established that DDT is highly toxic to cold-blooded animals,[1] but it is also known to be poisonous to warm-blooded animals, affecting mainly the nervous system and liver and is cumulative to a certain extent.[2] With this in mind it was decided to attempt an evaluation of exposure to DDT by

Charlotte Health Department thermal aerosol machine operators, commonly known as "fogging" machine personnel, realizing that many factors would influence the accuracy of the results. However, it is believed that a good indication of the exposure has been obtained.

Fogging Operation

The Charlotte Health Department carries on a full-time citywide fogging operation during the summer months. Two operators work from 12:00 A.M. until 8:00 A.M. five days per week, covering the entire city with DDT fog in approximately 10-day cycles. They operate one truck housing two Dyna-Fog machines. One person drives while the other stands on the rear and directs the fogging operation.

Two other operators work during daylight hours and employ a TIFA machine mounted on a jeep. Their schedule is more irregular than the night shift's, and they fog ditches, culverts and, in those instances where it can be justified, other small jobs, such as individual houses and buildings, by request. The operators are responsible for the cleaning and maintenance of the fogging machines as well as the mixing of the DDT solution.

Dyna-Fog truck with operators in normal position

These operators have been well trained in the necessary safety precautions which must be carried out.

Method of Sampling

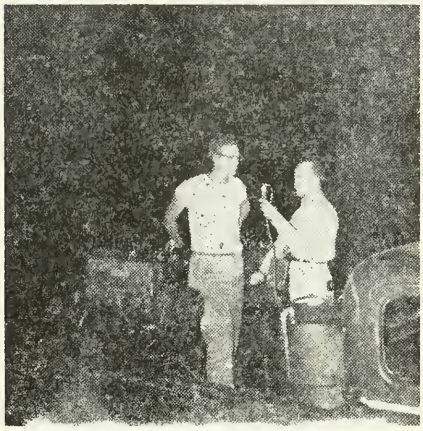
There are two well known ways of evaluating exposure to DDT. One is by air analysis and the other is by urine analysis. The former method was used

Cleaning tailpipe of Dyna-Fog machine

in this study, and 13 samples were collected and analyzed over a period of 5 weeks. The sampling instrument used was a Mine Safety Appliance Company Midget Impinger, and the collecting medium was iso-propyl alcohol (chloride free). The Standard Impinger could not be used here, since there was no source of power to operate the pump. Then, too, there is greater flexibility with the Midget Impinger, which was needed on a moving vehicle. The chemical analysis was carried out by both the North Carolina State Laboratory of Hygiene in Raleigh and the Charlotte Health Department Laboratory in Charlotte. The Hydrolysis method as outlined in Elkins[2] was followed.

The sampling technique involved riding on the fogging vehicle with the operators and sampling during a typical cycle of their work. Over an eight hour period the fog was actually being released for approximately four hours. The operators would come upon a dead-end street or some other obstruction

about six time per shift, which would necessitate turning around. During these times they would be completely engulfed in fog for 30 seconds to one minute. Normally the truck moves forward at a speed of 10 m.p.h. (5 m.p.h. for each Dyna-Fog machine) which usually removes the operator from the fog.[3] In the case of an individual house or building that is being fogged it is normal procedure for the operator to walk through the structure to see that fog is effectively reaching every part that should be fogged. During this time he may be engulfed in fog for one to three minutes. According to Livingstone[3], this operator is actually fogging, i.e., fog coming out of the machine, for approximately two hours per day for five days per week. The remainder of the time is spent traveling from one location to another, refilling the tanks and taking care of numerous other tasks incidental to the fogging operation.



Dyna-Fog truck showing Industrial Hygienist sampling with Midget Impinger

All samples were evaluated on the basis of concentration of DDT times the normal daily exposure.

Results of Sampling

The Maximum Allowable Concentration (MAC) for DDT as adopted by the American Conference of Governmental Industrial Hygienists is 2.0 milligrams per cubic meter of air. Essentially this means that a person in normal health could breathe this much DDT during a normal work week for the rest of his life and not experience any ill effects. It is interesting to note that all samples collected showed exposures well below the MAC.

The following Table (I) shows sampling locations with concentration for sampling time:

TABLE I

Samp. No.	Samp. Rate	Samp. Time (Mins.)	Collecting Medium	Sampling Location	Conc. DDT In Mg/M3
1	0.1 cfm	10	10 M1. iso-propyl alcohol	Operator's exposure on back of fogging machine. Dyna-Fog on 80% of time.	0.0
2	"	"	"	Driver's exposure in cab of truck. Truck in forward motion all of the time. Dyna-Fog on 90%of time.	0.0
3	"	"	"	Operator's exposure on back of fogging machine. Dyna-Fog on 100% of time.	0.05
4	"	"	"	Operator's exposure on back of fogging machine. Dyna-Fog on 100% of time.	0.0
5	"	"	"	Operator's exposure on back of fogging machine. Truck turned around 3 times. Dyna-Fog on 95% of time.	0.0

6	"	"	"	During mixing operation of DDT formulation. Opening and emptying bags (DDT) into fuel oil. Outside operation.	0.0
7	"	"	"	During bagging operation of 10% DDT, 90% Talc. One man using a scoop. Inside operation.	0.067
8	"	"	"	Driver's exposure in cab of truck. Turned around twice. Dyna-Fog on 100% of time.	0.03
9	"	1	"	During mixing operation of DDT formulation. Outside operation.	0.006
10	"	10	"	Operator's exposure (Tifa mach.) fogging basement of house. Walked through house during operation.	0.011
11	"	"	"	Operator's exposure (TIFA mach.) fogging wooded area behind three houses.	0.001
12	"	15	"	Operator's exposure on back of fogging machine. Turned around twice. Dyna-Fog on 100% of time.	0.015
13	"	15	"	Operator's exposure on back of fogging machine. Turned around twice. Dyna-Fog on 100% of time.	0.01

Table II gives a summary of the number of samples taken at each location.

TABLE II

LOCATION	NO. OF SAMPLES
Operator's exposure on back of Dyna-Fog Machine	6
Driver's exposure in cab of Dyna-Fog Truck	2
Operator's exposure on Tifa Machine	2
Exposure at mixing operation	2
Exposure at bagging operation	1
TOTAL:	13

Conclusions

From this study conducted over a period of 5 weeks, it appears that no serious exposure to DDT is being experienced by thermal aerosol machine operators of the Charlotte Health Department. Actually, the amounts are so small that they become insignificant when compared to the MAC.

DDT, like any other pesticide, can be handled and used safely if certain logical precautions are taken. These precautionary rules can be obtained from the health agencies, Departments of Agriculture and manufacturers of DDT.

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NOTES AND COMMENT

BY THE EDITOR

"SILO-FILLER'S DISEASE" SYMPTOMS DESCRIBED

Farmers have long known that it is dangerous to enter a newly-filled silo, but few realize the full extent of the danger, two Minneapolis physicians said recently.

A serious and potentially fatal respi-

ratory disorder, "silo-filler's disease," can result from breathing the gas of fermenting silage, Drs. Thomas Lowry and Leonard M. Schuman said in the Journal of the American Medical Association.

They described the newly-identified disease as "any bronchial or pulmonary condition produced by the inhalation of oxides of nitrogen derived from fresh silage." Because it resembles other lung conditions, such as bronchopneumonia, the doctor must know the patient has been exposed to silage fumes before he can make the proper diagnosis.

The authors warned that the possibility of exposure to nitrogen dioxide fumes may increase because of the greater use of commercial chemicals containing nitrogen. These are likely to increase production of nitrogen dioxide in silage.

Prevention of the disease is simple, they said: "Allow no one to enter a silo for any purpose from the time filling begins until seven to 10 days after it is finished." Nitrogen dioxide fumes are produced during this period.

In addition, good ventilation about the base of the silo should be provided during the dangerous period so that gases will be carried away. The area should be fenced to prevent children and animals from straying into it, and a blower fan should always be run before anyone enters a silo.

Even though farmers know it is dangerous to enter a newly filled silo, their actions do not reflect their knowledge, the authors said. Each of four patients seen by the physicians said he knew he was taking a risk when he entered a newly-filled silo. The fact that they were not stopped by the knowledge strongly suggests that their ideas of this "possible" hazard were not definite enough to make them regard the danger as real, the doctors said. They hoped their report will help farmers to regard the hazard more realistically.

The disease in their four patients—two of whom died—followed a similar pattern. Immediately after exposure, cough, difficulty in breathing, a choking sensation and severe weakness occurred. These symptoms remained to some degree for about three weeks when the second phase of the illness began. The symptoms became progressively worse, while chills, fever and blueness of the skin appeared. Eventually bronchiolitis fibrosa obliterans occurred; in this condition the tiny air sacs of the lungs become closed by the ingrowth of the wall tissue.

Antibiotics and other standard treatments for respiratory diseases had no effect on the symptoms. Two of the cases were treated successsfully with prednisone, a hormone related to hydrocortisone.

Two other reported cases which showed different but related symptoms suggest that silo-filler's disease is a "continuous spectrum of conditions," they said. The manifestations are likely to differ widely, while severity depends upon the concentration of nitrogen dioxide inhaled and the duration of exposure.

Simple safety measures in the silo will prevent the inhalation of the gas and therefore prevent the disease, the authors concluded.

Drs. Lowry and Schuman are from the department of internal medicine and the school of public health, University of Minnesota, and the medical service of Northwestern Hospital, Minneapolis.

MENTAL TESTS SUGGESTED FOR AGING EMPLOYEES

A series of mental tests was suggested recently as a way of deciding whether an aging person should retire, remain in his job or turn to a less taxing occupation.

Tests which could give an indication of mental adaptability, judgment and reasoning ability were suggested in an editorial in the Journal of the American Medical Association. It accompanied an announcement of objectives by the new A.M.A. committee on aging.

The tests could be of "enormous benefit" to business and to aging persons by keeping the alert older em-

ployee on the job. Many aging persons now are forced to retire prematurely solely on the basis of their chronological age. In other cases, the tests could show an individual that it is time to turn to a less taxing job, which could prolong his life.

This, however, is only one of the important problems connected with aging. With the progressive increase in the number of persons living beyond 60 years, more and more attention is being focused on the diseases which attack the aged person and on ways of keeping him active and relatively healthy, the editorial said.

The problems of aging extend from questions of "changes in enzyme systems within individual cells" to important social and economic problems of aged persons and their relation to other members of society, the committee statement said.

In recognition of these problems, the A.M.A.'s council on medical service has established a committee on aging, formerly called the committee on geriatrics.

The committee announced that at its first meeting it set forth several objectives, including the exploration of the medical, biological, psychological and social aspects of aging. It plans to collect information concerning energy maintenance, fatigue control, and the preservation of motivation, and to promote research in these areas.

In addition to informing the medical profession of the availability of information about the aging process, the committee hopes to stimulate medical society interest in the problems of aging and to impress upon the practicing physician the important role he can play by assuming community leadership to enrich the lives of older citizens.

The members of the committee on aging are Drs. Henry B. Mulholland, Charlottesville, Va., chairman; Edward L. Bortz, Philadelphia; Henry A. Holle, Austin, Texas; Wingate M. Johnson, Winston-Salem, N. C.; Theodore G. Klumpp, New York; Cecil Wittson, Omaha, and Frederick C. Swartz, Lansing, Mich.

108,000 WOMEN EXAMINED IN MASS CANCER SURVEY

A mass cancer-detection program, involving more than 100,000 women, was reported by a group of Tennessee researchers in the Journal of the American Medical Association.

Purpose of the program is twofold; to determine the feasibility of the "smear" technique as a method for early detection of cancer of the reproductive organs and to accumulate information about the "natural history" of such cancer.

The Memphis and Shelby County, Tenn., project was set up with the aim of examining all women over the age of 20 in the area and then making three annual reexaminations. Since the program began three and a half years ago over half of the female population —108,000 women—have had one examination, while 33,000 have had two examinations and 8,000 three examinations.

Among the 108,000 women examined once, there were 393 intraepithelial carcinomas—a type of growth which is thought to be a forerunner of invasive cancer of the cervix. Of these, 353 or 90 per cent had been unsuspected. This rate is not surprising since such carcinomas normally have no symptoms. There were also 373 invasive cancers of the womb, of which 112 (30 per cent) had been unsuspected. These figures, the authors said, show clearly the value of the smear technique as a method for early cancer detection. This simple procedure consists of taking a specimen of cells for microscopic study.

On the second examination of 33,000 women, 2.2 women per thousand were found to have intraepithelial carcinomas as compared with 3.6 per thousand on the first examination. The rate for cancer of the womb dropped from 3.4 cases per thousand women on the first screening to 0.3 cases per thousand on the second examination. A few of the cases found on the second screening had been missed earlier through error or unsatisfactory smear, and the rest were new cases.

The lower rate of uterine cancer and

intraepithelial carcinoma in the second screening suggests that the mass-screening approach to the control of uterine cancer can be successful, since it finds cancer in the early and still curable stages, they said. However, final conclusions cannot yet be drawn.

The project is a joint effort of the University of Tennessee and the National Cancer Institute. The Memphis and Shelby County Medical Society, the Memphis and Shelby County Health Department and the local units of the American Cancer Society are cooperating in the project.

About half of the smears have been obtained from women visiting their own physicians and the rest from those attending special clinics. The results of the examination are reported to the women's personal physicians, who perform further tests or give treatment, if needed.

The great advantage of the Memphis plan is that even though it is a mass project, the close doctor-patient relationship is maintained for followup diagnostic studies or treatment, the authors said.

The report also said:

The peak incidence of intraepithelial carcinoma is in women from 30 to 34 years of age, while the peak for cancer of the womb is from 50 to 54 years.

Half of the uterine cancers found were in Negroes, who made up one-third of the poulation surveyed. Two-fifths of the intraepithelial carcinomas found were in Negroes.

Fifty-nine per cent of all cases of uterine cancer and intraepithelial carcinoma were unsuspected. This represents a finding rate of almost five unsuspected cases for every thousand women.

The number of intraepithelial carcinomas diagnosed in the area during the study was four times greater than the number found in the two years preceding the study.

The report was made by Drs. Cyrus C. Erickson, Bennett E. Everett, Jr., Lloyd M. Graves, Raymond F. Kaiser, Richard A. Malmgren, Phil C. Schreier and Douglas H. Sprunt, and Irma Rube, M.S., and Sidney J. Cutler, M.A. They are from the University of Tennessee and the National Cancer Institute.

AMERICANS SPENDING MORE FOR HOSPITAL CARE

For the first time, Americans are spending more for hospital care than they are for physician services, according to an editorial in the Journal of the American Medical Association.

Personal expenditures for hospital services during 1955 were 3.13 billion dollars, as compared with 3.07 billion dollars for physician services. These figures, which appeared originally in the July, 1956, issue of Survey of Current Business, published by the U.S. Department of Commerce, "mark 1955 as a turning point in the history of medical economics," the editorial said.

In 1929 it was estimated that 959 million dollars was spent for physician services, while only 403 million was spent for hospital care. By 1950, expenditures totaled 2.435 million for doctor services and 1.975 million for hospital services.

In other words, the physician's share of the "medical care dollar" declined from 33 cents in 1929 to 27.2 cents in 1955, whereas the hospital's share rose from 14 to 27.8 cents.

One reason for the rise in hospital service expenditures is that hospital services have expanded, the editorial said. More persons are hospital patients and more babies are born in hospitals. Another reason is that hospital prices have risen more rapidly than physicians' fees because hospitals are more exposed to inflationary forces.

According to the Consumer Price Index, physicians' fees in 1955 were 65.8 per cent above the 1935-39 level as compared with an increase of 237.7 per cent in the index of hospital room rates and 91.4 per cent in the whole consumer price index.

The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

This Bulletin will be sent free to any citizen of the State upon request

Entered as second-class matter at Postoffice at Raleigh, N. C. under Act of August 24, 1912
Published monthly at the office of the Secretary of the Board, Raleigh, N. C.

VOL. 71 NOVEMBER, 1956 NO. 11

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CONTENTS

TUBERCULOSIS CONTROL IN NORTH CAROLINA ACTIVITIES OF THE TUBERCULOSIS CONTROL SECTION, DIVISION OF EPIDEMIOLOGY

BY WILLIAM A. SMITH, M.D.
State Board of Health, Raleigh, N. C.

1—GENERAL

Tuberculosis is defined as, an infectious disease caused by the mycobacterium tuberculosis and characterized by the formation of tubercles in the tissues. These tubercles may undergo cheese-like breakdown and tend to spread in all directions through the lungs, especially by means of the bronchial tubes. Infection may also be disseminated throughout the body through the lymph vessels and blood vessels. It is attended by symptoms which are primarily due to the large amounts of tuberculin produced by the bacilli. This "natural" tuberculin causes reactions throughout the body very much like the familiar skin test but on a vaster and more destructive scale. When not strictly localized, the general symptoms

of septic infection are present, such as fever, increasing emaciation and night sweats.

Tuberculosis has always been recognized as a severe devastating disease, accompanied in most cases by a long period of disablement and inability to perform work of any kind. It was once thought to be hereditary as it occurred in families. The occurrence in families was due to family crowding and poor knowledge of ordinary hygienic measures such as the disposal of infectious sputa, and precautions to take while coughing.

Public health had not advanced far in the early days of American Medicine and it was about 1882 when Dr. Herman Biggs, Health Commissioner of the City of New York began distributing leaflets about the disease. In 1893 he set up the first municipal laboratory to aid in diagnosing tuberculosis.

In 1900 tuberculosis ranked second among the causes of death in the United States; pneumonia and influenza were first and heart disease third.

Today tuberculosis ranks 9th among the causes of death in North Carolina. In 1904 there were 150,000 deaths from this disease in the United States and 1,500,000 active cases. To treat this huge number of cases there were only 9,000 beds available in this country.

The tuberculosis situation in North Carolina was brought forcibly to the attention of the State Medical Society in 1904 by Dr. Richard H. Lewis, then State Health Officer. The year, 1904, may be considered as the time when the State as a whole began to take notice of the seriousness of tuberculosis as a health and economic menace.

Since 1904 efforts in this State to control tuberculosis have gone far; there are now over two thousand State controlled hospital beds for treatment, twenty-eight tuberculosis clinics in county health departments, sixty-nine health departments covering the 100 counties; seventy-three counties have X-ray facilities and the State Board of Health operates six mobile X-ray units for taking the miniature film in the State wide chest X-ray surveys and a follow-up mobile unit for making the large film which is necessary to make the final chest diagnosis.

2—TUBERCULOSIS CONTROL PROGRAM

A tuberculosis control program must have available certain services. These are case finding, clinical, nursing, hospital, health education, laboratory, rehabilitation, vital statistics and welfare. The "keystone of tuberculosis control is case finding," and "chest X-ray surveys are considered the "spearhead of the attack" on tuberculosis. X-ray of the chest is considered the most reliable method of diagnosis. In recent years the tuberculin test has been more extensively used both in diagnosis and in case finding, and in tuberculosis control both X-ray of the chest and the tuberculin skin test should be used; the tuberculin test to find the person who harbors the tubercle bacillus without symptoms and the X-ray to determine gross disease.

The tuberculosis control case finding program in this State includes case finding by State agencies through the:

a. Operation of the 28 chest clinics by county health departments
b. Chest X-ray services in 73 counties
c. Chest X-rays of the population through the 6 mobile X-ray units operated by the State Board of Health
d. The probable joint support of at least two chest clinics by the State Board of Health for the coming year, these in addition to the 28 clinics now being operated and
e. Tuberculin testing of an entire county (Pamlico) with a view to pin-pointing every person in the county who has tuberculous infection and to continue follow-up of these persons indefinitely, (this is a joint project)

The study (Pamlico) will be conducted jointly with the Pamlico County Health Department, the State Tuberculosis Association, the U. S. Public Health Service with consultant service from the Duke University School of

Medicine, the State Sanatorium System and the School of Public Health, University of North Carolina.

Present plans calls for tuberculin testing of all school children in the county during the fall of 1956, followed by tuberculin testing of adults and children aged one year and over to begin in early 1957. Skin testing will be accompanied by chest X-rays.

Preliminary conferences have been held with county officials and others interested in the study.

Pamlico County is predominantly rural. The total 1956 population is 10,-174; White people 6,668, Negroes 3,506. The study is expected to continue for a period of five years.

Tuberculosis cases are detected through:

a. Discovery of the disease by private physicians
b. Examination of tuberculosis contacts
c. Chest X-ray examination of persons who require a health card and other routine chest X-ray examinations by Health Departments.
d. Routine chest X-ray of all hospital admissions and clinic cases.
e. Chest X-ray surveys of the general population and special groups by using mobile X-ray units.

Up to the present time our principal activity has been case finding through chest X-ray surveys by mobile units. Beginning in October this year we expect to engage in another activity, namely the joint tuberculin testing project and also to jointly support at least two chest clinics with the State Sanatorium System.

A discussion of case finding through mobile chest X-ray surveys follows.

3—MOBILE CHEST X-RAY SURVEYS

The method of case finding through chest X-rays of the general population and special groups by means of mobile X-ray units has developed rapidly within recent years and is today considered a basic part of any modern tuberculosis program (Edwards, Nelson's Loose Leaf Medicine 612). To be effective there must be effective health education, effective follow-up and also facilities for conducting the follow-up. These surveys find new undiagnosed cases in persons who have few if any symptoms and who visit the mobile units in response to a strong educational program or from curiosity alone.

One of the first and probably the most carefully supervised mass chest X-ray surveys was conducted at Camp Dix, New Jersey in 1936 during which over 7,000 CCC enrollees were X-rayed. In this survey almost 1% of those X-rayed showed active tuberculosis, slightly over 1% tuberculosis activity doubtful, and 5% tuberculosis inactive.

The development of the miniature flexible film has made possible the chest survey of persons on a large scale.

Surveys of this type have the advantage of other X-ray surveys in that the X-ray goes to the population and the population does not have to go to the diagnostic centre which may be at some distance. Other advantages are:

a. Finds tuberculosis in a stage which is more readily curable than non-survey cases
b. Findings compare to those of a general hospital although it may require more persons to be examined during a given period
c. Stimulates case reporting
d. Finds a reasonable number of reportable cases
e. Of an educational value
f. Finds many persons with mild lesions which may become clinical tuberculosis
g. Finds lung pathology other than tuberculosis
h. With proper educational programs the second survey is often as productive as the first survey
i. Surveys are not expensive
j. Reach special groups where tuberculosis is more prevalent

a. FINDS TUBERCULOSIS IN A STAGE WHICH IS MORE READILY CURABLE THAN NON-SURVEY CASES

Tuberculosis detected through mobile surveys are generally in an earlier stage than are cases found through other

X-ray surveys. In the early days of our surveys, minimal cases found were 55.3% and moderately advanced and far advanced cases made up the remainder. However our findings in 1954 show that there has been a drop in minimal cases to 30.5% and moderately advanced have increased from 34.5% to 51.8% and far advanced cases increased from 9.8% to 17.3%.

However our far advanced cases in 1954 were still substantially lower than the same type case found by a general hospital which conducts routine chest X-ray surveys of hospital admissions and clinic cases.

The U.S.P.H. has compared survey cases detected in a 1947 mass survey and non-survey cases during the same period in the same area. The survey cases showed a larger percentage of minimal cases and a smaller percentage of moderate and far advanced cases than non-survey cases, and using a life time table to study the survival of the two groups over a four year period it was estimated that the chance of a non-survey case dying was 1 out of three and the chance of a survey case dying within 4 years was 1 out of ten.

b. **COMPARE TO FINDINGS OF A GENERAL HOSPITAL IN WHICH ROUTINE X-RAYS ARE MADE ON ADMISSIONS, CLINIC CASES AND OTHERS**

During a six year period our mobile X-ray units averaged 1,486 tuberculosis suspects per unit; during the same period a stationary unit located in a general hospital which makes routine plates on hospital admissions, clinic cases and others, found 1,408 tuberculosis suspects. To find the 1,486 suspects by our unit required the X-ray examination of 272,308 persons and to find 1,408 tuberculosis suspects, the general hospital required the examination of 99,298 persons or about one third the mobile unit. Our units are operated by one technician who makes X-ray examinations six hours a day for five days a week, clerks on our units are not paid by us. The general hospital unit is operated by two persons on a 44 hour week. We use the 70 mm. film which is less expensive than the 4 x 5 film used by the general hospital. To make a cost comparison is difficult but the fact remains that a single unit in our group, in a given length of time, found the same number of suspects found by the general hospital.

c. **STIMULATES CASE REPORTING**

For the five year period immediately preceding the beginning of mobile surveys 9,848 new cases of tuberculosis were reported to the State Board of Health. Our mobile surveys began in 1945 and for the years 1945-1949 inclusive, 17,125 new cases were reported or a 73.8% increase. Immediately following our surveys in counties there is generally an increase in reporting.

d. **MOBILE SURVEYS FIND A REASONABLE NUMBER OF NEW REPORTABLE CASES**

In 1950 25% of all reportable cases were found by our mobile surveys. Last year 1955, 16% were found. It is believed that this number would be greater if all counties reported all reportable inactive cases.

e. **HEALTH EDUCATIONAL VALUE**

Surveys undoubtedly have a health educational value, as surveys bring to the attention of the population the value of a chest X-ray. In one of the northeastern counties 5 hospital cases were found during a short survey by one unit; immediately afterwards, 7 hospital cases presented themselves for X-ray, admitting that they desired a chest X-ray as a result of the strong educational program.

f. **FINDS MANY PERSONS WHO HAVE MILD LESIONS WHICH MAY BECOME CLINICAL TUBERCULOSIS**

Up to June 30, 1954 we had detected over 11,000 tuberculosis suspects. Some of the persons were hospitalized, many followed by the Health Department. The U.S.P.H. has found that 80% of tuberculosis suspects who were followed over a period of 4 years developed clini-

cal tuberculosis and when followed for a period of 2 years or less 60% suspects have turned out to be clinical tuberculosis. These findings were the result of a large survey on the west coast and there is no reason to believe that our findings should be different. The over 11,000 suspects we found were put on the alert and undoubtedly many were closely observed and received early treatment.

g. FINDS LUNG PATHOLOGY OTHER THAN TUBERCULOSIS

Our surveys show the prevalence of cardio-vascular pathology to range from 0.5% to 1% and lung tumor (proved at the operating table) to be from 1-6,000 to 1-8,000 of the population examined.

h. SECOND SURVEYS ARE IN MANY CASES AS PRODUCTIVE AS THE FIRST SURVEY AND IN SOME CASES MORE PRODUCTIVE

The Edgecombe County survey in 1951 for 25 days and with 5 X-ray units showed 57 persons who showed lung pathology from the 14 x 17 X-ray plate; in 1955 for the same number of days and with three X-ray units the survey found 141 persons who had lung pathology. Henderson County was surveyed in 1952 and in 1956. Findings in the two surveys are:

	Hospital rate; new cases	No. X-rayed	No. days of the survey
1952	0.82	12,195	33
1956	0.87	11,525	31

Hospital cases: 1952 10 new; 1956 10 new and 7 old cases

i. EXPENSE OF SURVEYS

For the past 2 years the cost, to the Tuberculosis Section, of the X-ray examination of one person was $0.61.

This includes all expense in connection with rendering the person a final diagnosis; also statistical service, nursing, educational help, and other expense except depreciation of equipment. The cost to the counties ranges from 2½ cents to a high of 12 cents per person X-rayed.

j. MOBILE SURVEYS REACH THE HIGH INCIDENCE GROUPS

A comparison of the 1949 and 1953 surveys shows that there has been a decrease in persons in the age groups under 15 who visit our units and substantial increase of the age groups beginning with the group 25-29.

Statistics also show that a higher percentage of the Negro population are X-rayed than the white population.

k. COMMENT

The importance of case finding is well expressed by Williams (NTA Tr. May 1954) when he says, "Find the man who is distributing the germ. Bring his lethal conduct to a stop. Anticipate future cases by X-ray and tuberculin testing."

The U.S.P.H. has followed the results of the 1946 mass survey of Muscogee County, Georgia, and after a 7 year study has summarized:

1. "The mortality rates were high for persons with evidence of tuberculosis in the survey films. Approximately 2.5% of the whites and 10% of the Negroes so classified died from tuberculosis in this 7 year period.
2. "The mortality rate for whites with survey films which showed no evidence of tuberculosis was low; 3 per 100,000 per year. For Negroes the rate was 45 or fifteen times as high.
3. "These observations lead to the conclusion that a complete X-ray survey of a white population followed by an adequate isolation of the infectious cases would reduce the tuberculosis control program for several years at least, to the provision of medical care and follow-up services for persons identified in the survey as tuberculous.
4. "For a Negro population, it appears that case finding programs should be repeated more frequently."

4—ACTIVITIES DURING 1955

During the year 1955 our mobile X-ray units (5 operating actively and 1 standby operating on occasion)

X-rayed 236,143 persons and of these approximately 3% were recalled for further examination to establish a final diagnosis. This reexamination during mass surveys was done on our mobile unit which houses the 14 by 17 X-ray unit and accompanies the mass X-ray field group.

Of the 236,143 persons X-rayed 1,272 were considered "tuberculosis suspects," or showed X-ray findings of either definite or suspected tuberculosis of the lung as diagnosed on the large film which was made to confirm findings of the small or miniature film.

Surveys were made in thirty-four counties, and students in seven State and non-State supported colleges had X-rays of the chest. State mental institutions were surveyed in May and June 1956.

The X-ray survey schedule has been prepared for 1957 and 1958 and four counties have requested surveys in 1959.

During each twelve month period since July 1, 1948 our chest X-ray surveys have found from 1,039 to 1,734 tuberculosis of the lung "suspects." These findings indicate that chest X-ray surveys of the population are fully justified.

5—PERSONS TO BE X-RAYED-EMPHASIS ON CERTAIN GROUPS

Formerly tuberculosis was more prevalent among young persons. The prevalence has shifted to the older age group and now tuberculosis is more frequent among males over 40 and females over 60. All groups of the population should be reached in case finding activities but certain groups should be pin-pointed. These groups are:

a. The older age group
b. Migrants
c. Hospital admissions and persons who seek medical attention for any cause
d. Mental hospital patients
e. Low income neighborhoods
f. Jail inmates; homeless men
g. Tuberculosis contacts
h. The Negro population

Such persons as school employees, barbers, beauticians and food handlers who come in close contact with the public should have a chest X-ray before employment and routinely thereafter.

6—MORBIDITY AND MORTALITY

Deaths, death rates, cases and case rates for North Carolina for 1918 and for the past five years are:

	Deaths	Death Rates	Cases	Case Rates
1918	3412	135.3	3514	139.3
1951	630	15.3	3105	75.3
1952	543	13.0	*2326	55.7
1953	402	9.5	2001	47.4
1954	311	7.3	2013	47.1
1955	258	6.4	1950	45.1
1956	123 (1st 5 mos)		1020 (1st 6 mos)	
1955	110 (1st 5 mos)		1009 (1st 6 mos)	

*Minimal inactive not reported.

New Active cases reported during the past five years:

1951	1743	
1952	1430	Decrease of 313 cases over previous year
1953	1350	Decrease of 80 cases over previous year
1954	1459	Increase of 109 cases over previous year
1955	1417	Decrease of 42 cases over previous year

For the first time since 1936 there has been a slight increase in the number of deaths during the current period over the previous period, namely, an increase of 13 deaths in 1956 over a similar period in 1955. The increase although small may mean that new cases and deaths may be stabilized for a period.

Annual county health department reports show that during 1955 over 75,000 nursing visits were made in behalf of tuberculosis cases, suspects and contacts, and that the total number of visits to diagnosed tuberculosis cases was over 8,000.

7—SUMMARY AND FINDINGS

The Tuberculosis Control Section has now been in operation for 11 years. The Section was organized in January 1945 and chest X-ray surveys on a small

scale were conducted during the period July 1, 1945 to December 31, 1945. Beginning January 1, 1946, through Grant-in-Aid Funds by the Federal Government, operations were accelerated and since that date the number of persons X-rayed has ranged from 200,000 to 303,000 or an average of about 250,000 a year. The largest number of persons X-rayed was in 1950.

Over 11,000 persons have shown X-ray findings characteristic of tuberculosis of the lung since surveys began and for the past 5 years total number persons X-rayed and number "suspects" found are:

	Number Examined	Number Tuberculosis "Suspects"
1950/51	282,520	1276
1951/52	242,882	1337
1952/53	231,921	1618
1953/54	250,968	1039
1954/55	240,717	1231
	1,249,008 Average per year 249,801	6,501 Average per year 1300

If we are to accept the findings of competent tuberculosis authorities that 80% of tuberculosis "suspects" turn out to be diagnosed cases of tuberculosis after a 4 year period of observation then the 6501 "suspects" found during the past 5 years will prove to be 5,200 clinical cases of tuberculosis of the lung. This number presents a sizable treatment and control problem.

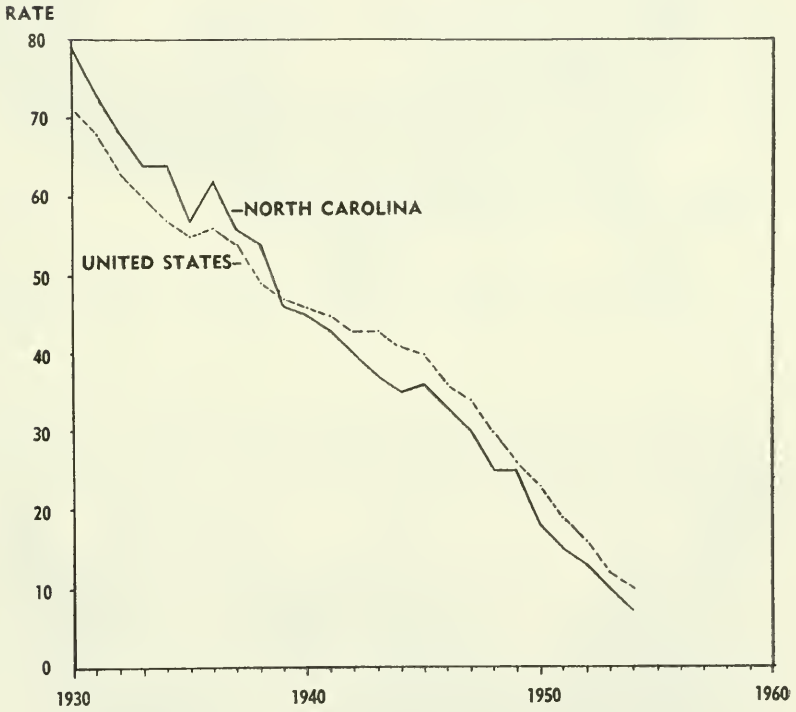
Tuberculosis is considered under control when the death rate is 5 or less per 100,000 population and when 5% or less of the school population have positive tuberculin skin tests. The Pamlico County study will give the number, age, race and sex distribution of individuals who have been infected and the information gained will be invaluable in planning future control measures.

To eradicate tuberculosis there must first be control. Continual observation of those who show positive tuberculin tests, with hospitalization and treatment of those persons who become active cases will remove from the community those persons who spread the disease.

It has been estimated that 55,000,000 persons in the United States show a positive skin tuberculin test. This means that this large number of people harbor with their bodies the tubercle bacillus and under stress and strain may develop active tuberculosis of the lung. The number of persons in this State who have a positive tuberculin test is unknown, but if we accept the figure 55,000,000 for the country as a whole, North Carolina should have its proportion which will be well over a million and a quarter persons. This large number of people is a vast potential reservoir of tuberculosis.

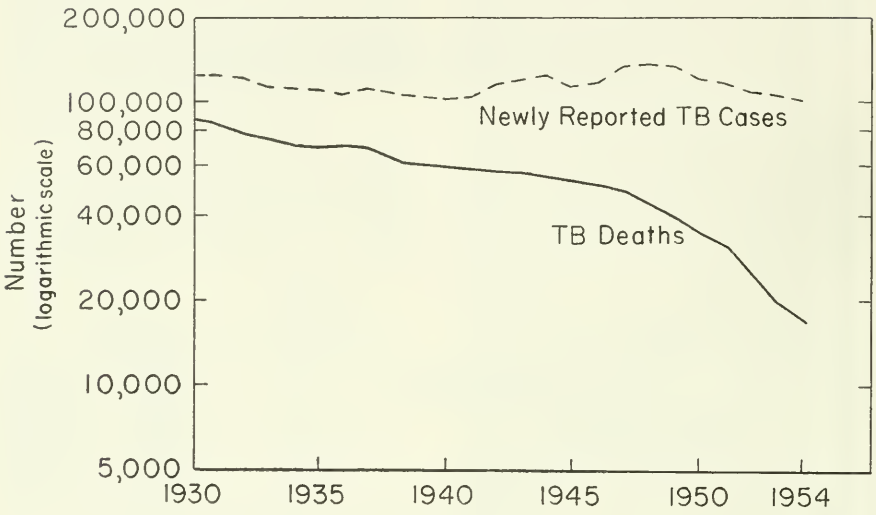
Considering this number of persons in the State who have tuberculous infection and with over 1400 new and hitherto unknown active cases reported yearly for the past five years, there should be no complacency in tuberculosis control measures but continued active efforts in case finding.

TUBERCULOSIS MORTALITY RATES PER 100,000 POPULATION:
UNITED STATES AND NORTH CAROLINA,
1930 - 1954



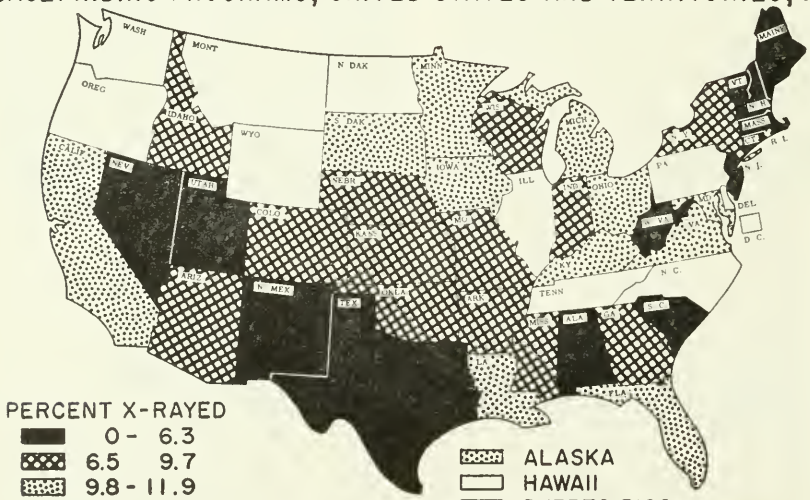
SOURCE UNITED STATES - THE AMERICAN REVIEW OF TUBERCULOSIS, JUNE, 1953
NORTH CAROLINA - NOVS, 1930-1950, PHSS, 1951-1953
PHSS 9/17/54

NEWLY REPORTED TUBERCULOSIS CASES AND TUBERCULOSIS DEATHS UNITED STATES, 1930–1954

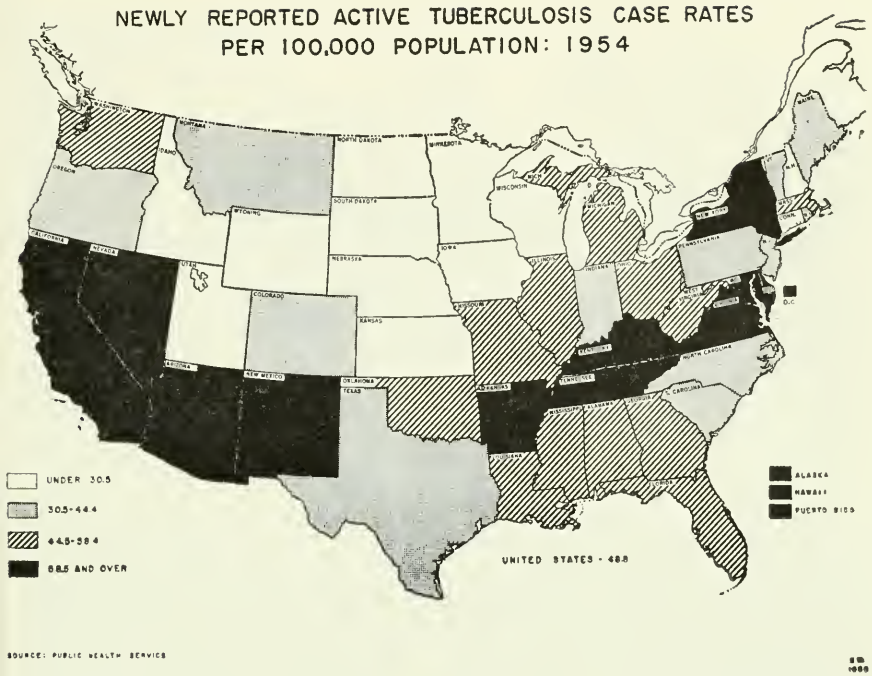


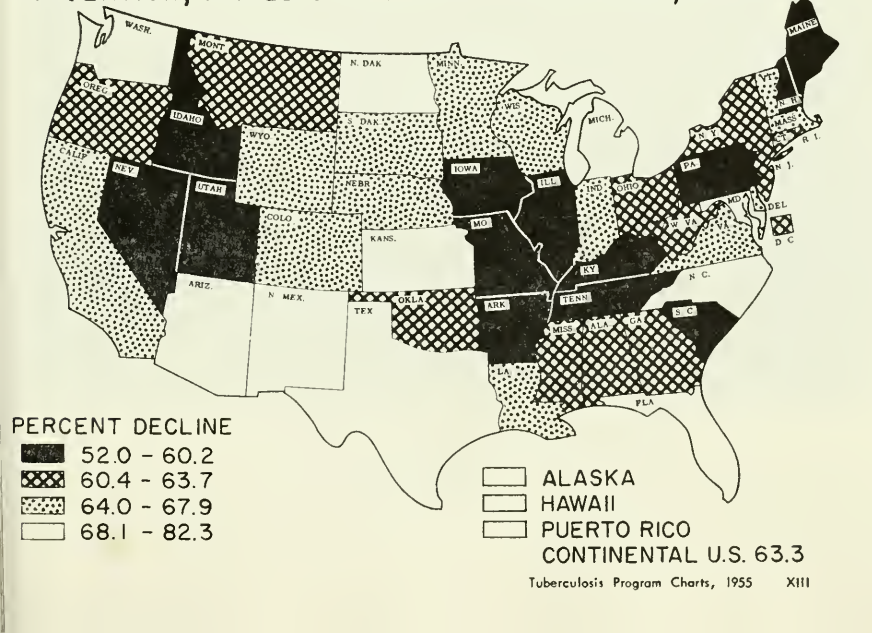
Tuberculosis Program Charts, 1955 I

PERCENT OF POPULATION X-RAYED IN TUBERCULOSIS CASEFINDING PROGRAMS, UNITED STATES AND TERRITORIES, 1953

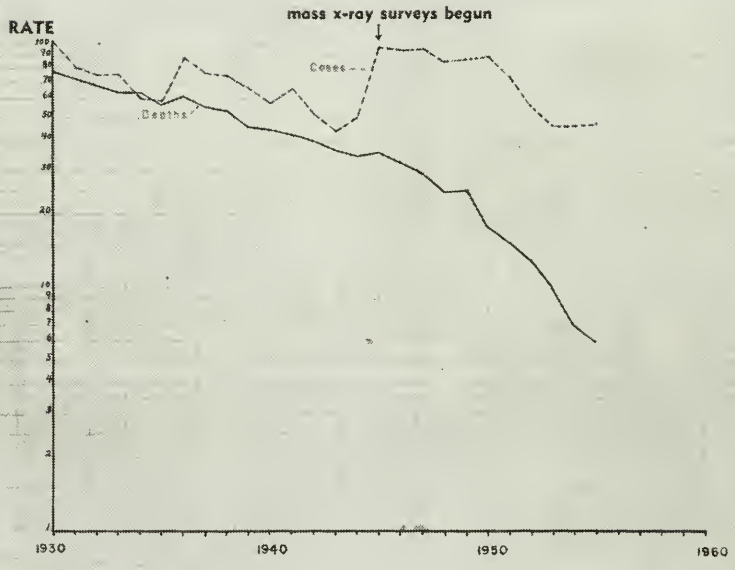


Tuberculosis Program Charts, 1955 XIV


NEWLY REPORTED ACTIVE TUBERCULOSIS CASE RATES
PER 100,000 POPULATION: 1954
UNDER 30.5
30.5-44.4
44.5-58.4
58.5 AND OVER
ALASKA
HAWAII
PUERTO RICO
UNITED STATES - 48.8
SOURCE: PUBLIC HEALTH SERVICE


PERCENTAGE DECLINE IN TUBERCULOSIS DEATHS PER 100,000
POPULATION, UNITED STATES AND TERRITORIES, 1947-1953
PERCENT DECLINE
52.0 - 60.2
60.4 - 63.7
64.0 - 67.9
68.1 - 82.3
ALASKA
HAWAII
PUERTO RICO
CONTINENTAL U.S. 63.3
Tuberculosis Program Charts, 1955 XIII

TUBERCULOSIS CASES AND DEATHS PER 100,000 POPULATION
NORTH CAROLINA, 1918 - 1955



SOURCE: ANNUAL REPORT OF THE PHSS, PART I & II

PHSS 9/1/56

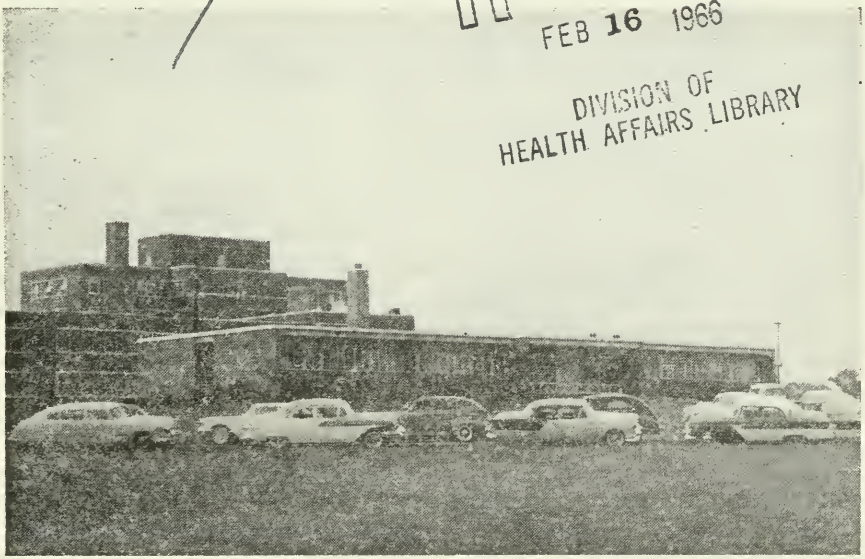
The Health Bulletin

Published by THE NORTH CAROLINA STATE BOARD OF HEALTH

This Bulletin will be sent free to any citizen of the State upon request

Entered as second-class matter at Postoffice at Raleigh, N. C. under Act of August 24, 1912
Published monthly at the office of the Secretary of the Board, Raleigh, N. C.

Vol. 71 DECEMBER, 1956 No. 12



JOHNSTON COUNTY HEALTH CENTER
SMITHFIELD, N. C.

List of free health literature will be supplied by local Health Departments or on written request.

CONTENTS

DO RALEIGH CHILDREN COME FIRST?*

BY J. W. R. NORTON, M.D., M.P.H.**

The title is borrowed from the excellent leading editorial of our morning newspaper a week ago in connection with the Raleigh vote on fluoridation of the municipal water supply set for a week from tomorrow. Even the opponents of fluoridation generally admit that decay of children's teeth is decreased considerably when fluorides are replaced in drinking water in proper amounts. The opposition agrees with our young mothers that from the standpoint of children fluoridated water is safe and economical. The opponents are still raising the same questions and express the same fears that I had regarding older people from a dozen years ago until about 1950. The increasingly overwhelming evidence favoring fluoridation will eventually convince them just as it did me. One must hasten to add that just as chlorination of municipal water supplies was not the complete answer to the control

*Paper given before the Raleigh Dental Society—December 3, 1956.

**Secretary-Treasurer and State Health Officer—N. C. State Board of Health

of typhoid and other filth-born intestinal diseases, so fluoridation must continue to be supplemented by proper food, tooth cleanliness and prompt and adequate care by dentists.

The raising of questions and the expressions of doubt regarding any new measure are desirable and helpful when accompanied by sufficient energy to study all available factual data and the intellectual honesty to analyze and accept the preponderance of evidence. We public health workers recall the opposition which at times was emotional and violent against chlorination of drinking water, vaccinations against smallpox and typhoid fever and the pasteurization of milk. We almost overlook the fact that there are still opponents of each of these generally accepted public health measures today.

Shakespeare bemoaned "the law's delay" and we physicians in public health find cause to agree with Dr. Demeritt who last week quoted Luther Burbank, "If we didn't take more care of our flowers than we do of our children, we would be living in a jungle of weeds." We see general acceptance and more prompt use of improvements in nutrition for poultry, swine and cattle or for cotton or tobacco than for children. A cotton farmer friend of mine planning to switch to emphasis on raising hogs immediately asked me to help him get the latest scientific information on pig vaccinations. I agreed to help him on that and casually inquired about the status of the several vaccinations available for his six little children. He appeared disappointed that I should switch the conversation to something of so little importance. We have for years urged the cooking of garbage used as hog feed to prevent human trichinosis. Hardly a raised eyebrow. Then uncooked garbage fed to hogs became a threat in transmission of vesicular exanthem to pigs. Prompt legislative action followed and, as a by-product, human trichinosis will be reduced.

In Raleigh today we have almost no horses, cattle or poultry. We do have lots of cats, dogs, canaries and parakeets; and if fluoridated water could be shown to be of even partial special benefit to all or any of them, one is left to wonder how much of the present opposition would become silent. On the date announced for the beginning of fluoridation in Charlotte complaints flooded the health department. They ranged from withering geraniums and canaries not singing to washing machines not working and kittens becoming sick. Equipment was delayed in being installed, and the water was as usual. Later, fluoridation was begun without public announcement, and there were no complaints.

Fluorides are found in tiny amounts in all plant and animal foods. Soil erosion has contributed to poor distribution so that ground waters vary from a total absence of fluoride to eight or more parts per million. Raleigh water now contains about 0.1 ppm. There is tooth discoloration when too little or too much fluoride is present. The important fact is that there is an optimum amount that reduces dental decay and yet has no esthetic handicap. Where the amount is too high the supply should be diluted, the excessive fluoride content removed or a new water supply sought. It follows just as naturally that when the fluoride naturally present is deficient supplementation is desirable from a health standpoint.

Whether a chemical is a poison or not depends on the dosage. Arsenic at one dosage is used as a tonic, at another it is a deadly poison. Sodium chloride (table salt) is one of our dietary constituents but it also is a deadly poison in excessive amounts just as distilled water or even oxygen (retrolental fibroplasia) can be. There is no reason to believe fluorides would be used in excessive amounts under the safeguards required by your State Board of Health.

Fluoridation is such a safe procedure that if a year's supply were dumped into a city water supply in one day it is doubtful if anyone would be made ill. One part per million sodium fluoride in drinking water amounts to a few drops

of the concentrate to a bathtub full of water. We would be foolish to consider potential saboteurs stupid. The application of excessive fluoridation would be about the least likely to succeed as well as totally impractical.

In a survey made some years ago by the North Carolina Dental Society, it was found 84 per cent of the children enrolled in school needed dental attention. 82½ per cent of these children needed permanent teeth filled. 60 per cent needed to have their first teeth filled and over half needed to have teeth extracted. 55 per cent of the children had never visited a dental office. There are about a million children of school age in North Carolina. More than five hundred thousand are too young to go to school, and the normal birth rate is about 115 thousand a year.

1. Forty per cent of the population at 40 years of age are wearing dentures.
2. Forty-five per cent of the people out of work because of illness are at home due to dental disease.
3. Fifty per cent more time is lost in industry due to dental disease than any other cause.
4. Twenty per cent of the children 9 years of age have never been in a dental office.
5. There are 88,000 dentists in the United States, one for every 1,700 persons.
6. In North Carolina there is one dentist for every 3,513 persons. There are 1,200 dentists in North Carolina.
7. Americans spent one and one-half billion dollars last year for their teeth.
8. There are 46 dental schools in the nation with approximately 12,000 students enrolled. 3,000 are graduated each year.
9. It is estimated that the increase in dentists is not keeping pace with the rising population. By 1960 the population will be 9 per cent higher while the number of dentists will rise an estimated 5 per cent.
10. Thirty million Americans now drink fluoridated water, and at least 4 million are being added each year. In North Carolina there are 23 communities which have a fluoridation program serving over a half million people.

Members of the Raleigh Dental Society already know the case for fluoridation is sound and based on:

1. The need for some means of controlling dental decay for reasons of
   a. Health conditions—dental caries is civilization's most prevalent disease.
   b. Economic loss—dental bills for our children now over $1,200,000,000 a year.
   c. Availability of dental services.
2. Fluoridation will limit this disease in great masses of people safely and economically.
3. Carefully documented and controlled studies prove the effectiveness and safety of fluoridation.
4. Many leading cities have adopted the measure — Philadelphia, Pittsburgh, Baltimore, Washington, San Francisco, Chicago.

Nor do we need to go into a refutation of the claims of those opposed to fluoridation. These have been well answered by those well qualified to do so in both professional and lay publications. For instance, the cry that fluorine is poison and that drinking fluoridated water is a toxic threat has been carefully and calmly discussed by Dr. Harold C. Hodge, Professor of Pharmacology and Toxicology of the School of Medicine and Dentistry of the University of Rochester. According to Dr. Hodge, "studies show neither acute nor chronic after effects from the use of fluorides in water as a dental health measure."

Similarly, the contention that chronic illnesses are caused or made worse by the consumption of fluoridated water has been discounted by the report of the Commission on Chronic Illness. The

Commission endorsed fluoridation as a positive step in the prevention of the chronic disease, dental caries, only after a committee of distingushed scientists reviewed and evaluated the available evidence.

I give these as examples of the soundness of answers to the questions posed by the opposition. While we have the answers, I feel, and I know that Dr. Branch concurs, that engaging in arguments or debates does not best serve the cause of fluoridation. As J. C. Furnas so aptly says in his article in the Saturday Evening Post of May 19, 1956, "Mostly the movement generates heat rather than light."

While we may feel discouraged that a measure with so much promise—"promise of a generation of Americans with less tooth decay"—has met with such opposition, there are encouraging facts in the picture. I am not in agreement with the pessimist in the Public Health Service who has calculated that it will take 279 years for the measure to be adopted by all towns and cities in which it is feasible. We mentioned earlier some of the large cities that now have it. Figures released by the Public Health Service show that as of November 1, 1956, controlled fluoridation in 1,432 communities is serving a population of 30,490,419. We are making progress in North Carolina with 23 towns and cities replacing the deficiency and 25 others with enough occurring naturally, totalling about 600,000 population. A few have found they had more than the optimum amounts. (Windsor and Williamston for example, have over 2 PPM)

Another favorable factor in the overall situation is that, though a slim majority of the 250 or more places holding referendums have voted it down, fluoridation has met the test of legality in the courts. We have had unfavorable votes in Statesville and Greensboro. There have been no final court actions unfavorable to fluoridation. Its legality has been contested in the courts of 13 states. The decisions of these cases strongly support the view that the prevention and control of dental decay, a common disease of mankind, are proper subjects for legislation enacted pursuant to the police power and that the fluoridation of municipal water supplies represents a valid exercise of that power. The recent decision of the U. S. Supreme Court in the case of de Aryan vs. Butler dispels any constitutional uncertainty and provides a broad affirmative declaration of "the scope of police power to include measures, not only to restrain actions inimical to health, but to promote health by reasonable measures when a broad community interest is involved."

It may be found that the objectors to fluoridation have really done the cause a good service. By raising certain questions they have stimulated further research leading to the accumulation of additional facts and more conclusive evidence that fluoridation is safe. Dr. James H. Shaw of Harvard University School of Dental Medicine gives this analysis of the effects of the discussions pro and con:

"Use and abuse of the freedom of speech in public health matters often cause delays in the beginning of worthwhile programs. As long as the issues raised are based on facts and on sound reasoning about the facts, these delays should not be considered to be unmerited, and the motives of the opponents in no way should be condemned. However, in connection with the fluoridation proposal, there has been a deplorable introduction of unsubstantiated statements guised as facts. These misrepresentations have led to anxiety on the part of some of our citizens who realize their own inability to evaluate scientific data and seek reliable guidance on such matters."

That is where we come in as dentists, physicians, and public health workers. Ours is the task of giving **reliable guidance.** Be familiar with literature and arguments of opposition.

You have opportunities and avenues for doing this, individually and collectively. You should start with your patients. You have the unusual opportunity of being able to hold forth on the subject without interruption. If

all of the patients that all of you will see in the week left before the election were to vote in favor of fluoridation, they could be the deciding majority.

I want to commend you for the leadership you have given to the campaign individually and as the Raleigh Dental Society. The dentists of Raleigh and of North Carolina have always been public health minded and have given generously of their time and means for promoting the health and welfare of our citizens.

We physicians of Raleigh realize that water fluoridation is of concern to us. Physicians are interested in good dental health and in its relation to general health. Patients often ask their physicians' opinions on health problems. I hope that our physicians are in a position to give informed answers. If you have literature on the subject you might share it with the physicians in offices near you.

One of the opportunities for us in public health is to make available **understandable** educational materials about fluoridation. I believe you will agree with me that our Division of Oral Hygiene is doing a good job in this respect. It has prepared booklets and leaflets on the subject. From time to time, it has reproduced and distributed reprints of timely articles.

It is of interest that dentists and physicians were first attracted to the effects of fluoride in water because of the esthetically objectionable mottling of tooth enamel. This was first observed in cities using water with 4-8 PPM fluorides. Then it was noted that these had a lower DMF rate (diseased, missing, filled). It was also observed that in the absence of fluorides there was discoloration from the nutritional deficiency and that the dental decay was consistently higher when fluorides were below 0.7 PPM, particularly in cooler climates where less water was consumed. Fortunately, it was found that there is an optimum amount and that fluorides mechanically added have the same effect as those occurring naturally.

I'm sure that none of you doubts the close relationship of dental and systemic health or disease. You also appreciate the fact that childhood health or disease will extend its effects on into adulthood and old age. Absorption of the known poison pus from gumboils and the known poisons from chronically diseased teeth, gums and jaws are more to be feared than the poisons which so far as present knowledge goes are more likely figments of the imagination of chronic "aginers".

Finally, the unscrupulous opponents of fluoridation have spread the impression that the American Medical Association did not endorse this public health measure. The fact is that it did, and that it stands by its endorsement. It is true that the endorsement did not urge any action whatsoever upon responsible officials because that is not the function of the Association. Both the AMA Council on Pharmacy and Chemistry and the AMA Council on Foods and Nutrition expressed themselves definitely to the effect that fluoridation is safe. If this is not an endorsement—what is it?

NORTH CAROLINA TUBERCULOSIS ASSOCIATION LOOKS TO THE FUTURE

BY C. SCOTT VENABLE, EXECUTIVE DIRECTOR
North Carolina Tuberculosis Association
Raleigh, North Carolina

The year 1956 marked the fiftieth anniversary of the North Carolina Tuberculosis Association. It was an appropriate time to stop, look and plan; to review the past and plan the future.

Great strides have been made in North Carolina in tuberculosis control over the past fifty years, for which we are thankful. The death rate has been reduced from over 200 per 100,000 population in 1906 to less than 6 per 100,000 in 1956; but we cannot turn our heads away from many terrible truths still facing us.

Tuberculosis still kills more North Carolinians than all the other infectious diseases combined. The case rate has not gone down with the death rate (the average number of new cases for the past five years is over 2,000). It is estimated that over a third of our citizens are infected with TB germs and could break down with active tuberculosis without further infection.

The tuberculosis problem is changing daily and requires constant evaluation of present policies of control. It is becoming more and more a disease of the older age groups in our state. Futhermore, we are finding more and more tuberculosis among alcoholics, indigents and the poorly educated. According to a recent United States Public Health Service survey, more than half of the active cases are being treated at home in one manner or another. It is not known to what extent this survey holds true in North Carolina, but nevertheless, the trend is frightening in many respects. Think of how the above changes have affected our rehabilitation, case finding and treatment efforts, just to mention a few of the implications.

The NCTA is aware of the difficult job ahead, and in 1956, with much vision and foresight, its leaders assisted in some far-reaching programs which could conceivably influence the control of tuberculosis not only in North Carolina, but in the entire United States.

Pamlico County, a small county of 11,000 people on the coast of North Carolina, was chosen as the site of a county-wide tuberculin testing pilot study. This significant study is being jointly sponsored by the NCTA and its locals throughout the state, the N. C. State Board of Health and the N. C. Sanatoriums. Recently the United States Public Health Service has indicated its interest and is sending a team to administer the tuberculin tests during the inital year.

The N. C. State Board of Health is providing X-ray units, X-ray film and an additional clerk during the length of the study. NCTA and local TB Associations from all over the state have contributed thousands of dollars to hire an additional full-time nurse and to finance other phases of the study.

In this prodigious project, objectively every man, woman and child in Pamlico County will be given a tuberculin test and a chest X-ray once a year for the next five years. Different strengths of tuberculin will be tested, the patch test will be compared with the skin test, conversion rates will be studied, to mention only a few of the vital questions to be studied.

It is the first time that such a sustained, communitywide tuberculin testing pilot study has ever been undertaken in the South. It will also mark the first time to have so many different aspects of the tuberculin test studied in

a systematic and analytical fashion.

The leaders of the NCTA believe that in order to eradicate tuberculosis someday we must not only conduct social research on the scale of the Pamlico County study, but also pursue medical research on the same scale.

North Carolina is singularly in the forefront in research in having many vitally important research projects going on in the state. It is imperative to remember that, even though there are many tuberculosis research projects being conducted in the state, all of those supported by the NCTA and its affiliates are integrated into the national program through the coordination of the National Tuberculosis Association. NTA does this in order to avoid costly and wasteful duplication throughout the United States.

Presently at the Research Center at Gravely Sanatorium in Chapel Hill, a very important vaccine research project is being conducted under the leadership of Dr. Stuart Willis. Hopefully, we can report that some progress has been made, particularly in the standardization of certain strains of vaccine, and Dr. Willis has stated on several occasions that this important work could not have gone forward without the generous financial support of the NCTA and its local affiliates.

Not only does the NCTA spend thousands of dollars each year in North Carolina on research, but, in addition, the National Tuberculosis Association spends more than $15,000 each year on research projects in this state. Six per cent of the annual Christmas Seal Sale in North Carolina is sent to NTA, 1% of which is designated solely for research, thus it is easy to see that North Carolina gets back many times the money sent to NTA.

One of the most perplexing problems faced by leaders today in controlling tuberculosis is that of rehabilitation. As stated earlier, the problem is being radically changed and intensified because of the growing number of older people who are contacting the disease. Chemotherapy, shorter hospital stays, AWOL's, home treatment, low IQ's, and the indigenous circumstances of many patients—all are multiplying the problems faced by the social workers and the doctors alike in their efforts to return patients to healthy and happy lives.

Each year the NCTA jointly sponsors with seven other interested agencies in the state an institute on tuberculosis control. Rehabilitation receives primary emphasis at this three-day meeting. The institute is open not only to North Carolinians who are interested in the problems of the tuberculous but also to our neighbors in all the Southern states.

In 1956 the institute was held for the first time in Saluda, N. C. It was a milestone in this annual endeavor on the part of the NCTA and others to promote the return of thousands of TB patients to their communities as happy and productive citizens .

A great deal of the success of this year's institute belongs to Dr. Sidney H. Dressler, medical director, National Jewish Hospital, Denver, Colorado, whose active participation and advanced thinking gave new insight to all of those present in the control of tuberculosis. Well over a hundred doctors, nurses, social workers and TB association executives attending the Institute were impressed also with the help they received from the other stimulating participants.

Under the leadership of its president, Mr. E. N. Pope of Raleigh, not only has the NCTA pushed the many special projects like the Pamlico County tuberculin test study, but at the same time much progress has been made in day-to-day efforts toward better case finding, school health and many other aspects of tuberculosis control in North Carolina.

The NCTA and the N. C. Trudeau Society are happy to be joined by the N. C. Radiological Society, the N. C. Public Health Association, the N. C. Medical Society, the N. C. Hospital Association and the N. C. State Nurses Association to go on record as favor-

ing programs of routinely X-raying admissions to general hospitals. Such programs have justified themselves by finding 2-4 times more TB than mass X-raying of the general population.

Two nationally sponsored projects in which the NCTA participated were the School Press Project and a unique program among Negro Elks to help its members initiate and develop their own health education programs.

The 1956 Christmas Seal Sale in North Carolina should also prove to be historical in the fight against TB, as it is hoped that this will mark the first time ever to have the sale surpass the half-million-dollar mark. Last year the people of North Carolina supported the work of the NCTA and its local affiliates to the extent of $489,231.

What could be a better time than this, the 50th anniversary of the Christmas Seal for the people to go over the half-million mark in North Carolina?

Spencer Love, chairman of the board of Burlington Mills, Inc., is the 1956 State Christmas Seal chairman and under his dynamic leadership the NCTA will be pushing hard for its finest campaign.

Listed below are the amounts expended by the North Carolina Tuberculosis Association in carrying out its program activities showing how our percentage of the 1955 Seal Sale was spent on a statewide basis.

OPERATING STATEMENT
North Carolina Tuberculosis Association
April 1, 1955 - March 31, 1956

INCOME

1954 Christmas Seal Sale	$100,153.31		
Less Participation in National Program*	28,535.17	$71,618.14	
Interest earned on bonds and bank deposits		1,522.02	
Sundry Income (including $2,500 Grant from NTA)		3,025.00	$76,165.16

EXPENDITURES BY SERVICE

Health Education and Information	24,988.10	
Rehabilitation	7,293.54	
Administration	9,752.74	
Seal Sale	15,900.00	
Field and Organization and promotion of case finding	19,185.59	
TOTAL EXPENDITURES		$77,119.97

*Includes 1 per cent for research

NOTES AND COMMENT
BY THE EDITOR

1957 FORUM ON MENTAL HEALTH TO BE "CHALLENGE TO ALL HEALTH SERVICES"

Theme of the 1957 National Health Forum will be "Better Mental Health—Challenge to All Health Services," according to Dr. Francis J. Braceland, chairman of the committee of 23 who are planning the program for the Forum, to be held March 20-22 in Cincinnati, Ohio, at the Hotel Hilton Plaza. Dr. Braceland is psychiatrist-in-chief at the Institute of Living, Hartford, Connecticut, and president of the American Psychiatric Association.

He explained the theme by saying, "The Forum will seek to outline what we now know about how to foster mental health, and to encourage more

effective use of that knowledge.

"Ten thousand additions each year to the total of 750,000 Americans in mental hospitals, and the unmet needs for help to troubled people outside the hospitals, constitute a challenge that cannot be ignored.

"Every citizen faces the challenge to some extent, but members of the health professions and other workers in our health organizations and agencies cannot escape it, for continuously they must try to help people meet major crises in their lives. The acute shortages of personnel trained in psychiatry and psychology mean that all health personnel—whether professional, auxiliary, or volunteer—must take far more responsibility for the preservation and promotion of mental health than is now generally being carried."

INFANT EYE DISEASE RELATED TO LENGTH OF TIME IN OXYGEN

Premature infants should be given additional oxygen only in emergencies and then for as brief periods of time as possible, three Detroit researchers said recently.

They based their recommendation on a recent study which showed that length of exposure to oxygen is the important factor in producing retrolental fibroplasia, a serious eye disease which may result in blindness. This differs from earlier studies indicating that the concentration of oxygen was the causative factor.

Retrolental fibroplasia was first recognized as a disease of premature infants in 1942 and is now the major cause of blindness among children. Oxygen administration to premature infants was implicated as a possible cause in 1952.

However, because the disease appeared to occur haphazardly and because no information was available on death rates due to curtailing oxygen for premature infants, doctors have been reluctant to change their routine of oxygen administration.

The Detroit researchers now report that restricting oxygen not only lessens the chances of retrolental fibroplasia, but also appears to have no effect on an infant's chances for survival.

The report in the Archives of Ophthalmology, published by the American Medical Association, is based on a cooperative study made in 18 hospitals between July 1, 1953, and June 30, 1954, in an attempt to clear up questions about oxygen's effect on RLF and mortality rates.

Of the 786 premature infants born in or brought to the 18 hospitals during the year, 586 were followed for at least two and a half months. Fifty-three infants were given oxygen for 28 days, the standard procedure at the time. The other 533 infants were given oxygen only when breathing difficulty occurred.

The study showed that on a percentage basis, twice as many infants in the routine-oxygen group developed the early active stages of the disease as did infants in the curtailed-oxygen group. The rate of progression to the later scarring (cicatricial) stages which produce permanent damage to the eyes was three and a half times greater in the routine-oxygen group than in the curtailed-oxygen group.

The rate for both active and cicatrical stages increased as the duration of exposure to oxygen increased, but was not affected by the concentration. Rate of withdrawal from oxygen did not appear to play a role, they said.

The incidence was much greater in infants of multiple birth (twins or triplets) than of single birth. The authors said the reason for this is unknown, but it may be related to the degree of oxygen saturation in the blood. A multiple-birth infant might have less oxygen in his blood before birth than a single-birth baby. When he is given additional oxygen, a relatively greater difference in blood-oxygen saturation before and after birth could result, which might be "a greater insult" to the blood vessels of the eye.

The authors are V. Everett Kinsey, Ph.D., and June Twomey Jacobus, B.A., of the Kresge Eye Institute, Detroit, and F. M. Hemphill, Ph.D., of the

School of Public Health, University of Michigan, Ann Arbor.

The cooperative study was supported by grants from the National Institute for Neurological Diseases and Blindness of the U.S. Public Health Service, Bethesda, Md., the National Foundation for Eye Research, Boston, and the National Society for the Prevention of Blindness, New York.

UNIFORM CHEMICAL LABELING LAW PROPOSED

The American Medical Association's Board of Trustees has authorized a first step toward protecting the public from potentially dangerous household and commercial chemicals.

The Board authoribed the A.M.A. committee on toxicology to draft a recommended "model" law on labeling of many possibly harmful chemicals not now regulated.

It would serve as a guide for writing regulations which would require labels to show such information as the product's contents, its possible dangers, directions for safe use, and first aid instructions.

Products involved include auto care and repair materials, paints and paint removers, putty, soldering fluids, household cleansers and polishers, heating and cooking fuels, laundering items, art supplies, and toys containing chemicals.

The committee's secretary, Bernard E. Conley, estimates there are at least a quarter of a million different trade-name substances now on the market. Without proper labeling, physicians and the public cannot possibly know what harmful material they may contain or how to treat poisoning from them.

The proposed law is intended to reduce careless and ignorant handling and storage of chemicals in the home, in small business and in other areas where control of exposure to the chemicals is not as efficient as it is in the manufacturing process, Conley said.

The law should be an "enabling act" under which later regulations could spell out necessary details for enforcement and compliance, according to Dr. Torald Sollmann, Cleveland, committee chairman. The legislation should be flexible and not readily out of date.

The A.M.A. committee plans to consult other organizations and individuals who are interested in the problem. These include the American Academy of Pediatrics, American Public Health Association, American Pharmaceutical Association, National Safety Council, leading trade associations, and various state and national government regulatory agencies.

EDITORIALS WARN AGAINST IMPROPER USE OF DRUGS

Warnings against the improper use of two types of medicine—drugs sold "over the counter" without a prescription and barbiturates sold only on prescription —were issued in the Journal of the American Medical Association.

The warnings, along with suggestions of how physicians and pharmacists can prevent improper use, apeared in two Journal editorials.

The great danger in using "over-the-counter" medicines lies in misreading or not reading labels, one editorial said. In addition, there is always the possibility of delaying proper medical diagnosis because the individual may temporarily feel well or his symptoms may be "masked" by the drug's action.

Most non-prescription drugs sold today have been proved to be "reasonably" harmless. In fact, they can't be sold without a prescription until trials have shown they have no harmful side effects when taken in the proper amounts. The danger lies in excessive dosage.

The editorial explained that current federal legislation requires a prescription for the sale of any drug which is potentially unsafe when used without medical supervision. However, a manufacturer or even an interested person who believes the prescription restriction is no longer necessary, and has evidence to support his contention, may petition the Food and Drug Administration to allow over-the-counter sales,

provided labeling includes adequate directions and warnings.

It is here that physicians have a responsibility, the editorial said. By reporting any harmful side effects resulting from the use of a prescribed drug, physicians may prevent a potentially harmful drug from going on sale without a prescription.

In another editorial, Dr. Harris Isbell of the National Institute of Mental Health, Addiction Research Center, U.S. Public Health Service Hospital, Lexington, Ky., said that symptoms of barbiturate intoxication have been found to be similar to those of chronic alcoholism.

If, as it appears, alcohol and barbiturates actually cause similar nervous system changes, adequate doses of either should partly or completely suppress symptoms resulting from the withdrawal of the other. This helps explain how alcoholics can substitute barbiturates for alcohol and vice versa.

Persons who are intoxicated by barbiturates are menaces, both to themselves and others, Dr. Isbell said. For this reason, the medical and pharmaceutical professions bear a heavy responsibility in prescribing and dispensing barbiturates.

Great care should be used in prescribing barbiturates for unstable persons, and such persons should be watched carefully, he said, adding that simple insomnia is seldom a valid reason for using barbiturates. He also warned that physicians should not prescribe a barbiturate for a stranger unless "the indication for the drug is unmistakable."

Prescriptions should be limited in amount and the laws against refills without a new prescription should be strictly observed, he said.

MEDICAL INTEREST, ACTION IN SPORTS OUTLINED

Recent activities of doctors in the field of athletics indicate that medical interest in the field is rising and will become even greater in the future, according to two editorials in the Journal of the American Medical Association.

An unsigned editorial, which outlined the A.M.A.'s activities in sports medicine, challenged the profession to increase its activities in preventng athletic injuries. The A.M.A. already has organized a committee on sports injuries, which will meet in Seattle to consider suggestions for certain rule revisions that would give more protection to athletes.

Meanwhile the A.M.A.'s bureau of health education is continuing over 20 years of work with educational authorities to help make school sports and physical education programs safe and wholesome. This is done in meetings with high school athletic groups and educational association officials, articles in Today's Health, an A.M.A. publication, and pamphlets.

The bureau concentrates its interest in high school athletics, where sports participation is the greatest and where more than half of all football deaths have occurred in the past 25 years.

As a result of this effort by doctors, educators and coaches, some 20 state high school athletic associations now have medical advisory committees.

Medical interest in sports is illustrated by research being carried on in such institutions as the aeronautical laboratory of Cornell University. There doctors are working to make football equipment safer.

In the second editorial, Dr. Allan J. Ryan, Meridan, Conn., a member of the A.M.A. committee on sports injuries, listed other recent developments in the field of sports and medicine. These include the decision to appoint a Presidential Council on Youth Fitness at the cabinet level and to create a citizen's advisory committee to the council, and the organization of the American College of Sports Medicine and the Western Council of Sports Medicine.

Dr. Ryan noted that the appearance of such organizations "gives further indication that we are on the threshold of even greater interest in the scientific study and development of sport in the United States."